

MAY 1953

ARMY INFORMATION DIGEST



“POWER FOR PEACE”

ARMED FORCES DAY 16 MAY 1953

In This Issue:

TWO DAYS dedicated to the Nation's defenders—past and present—are observed this month. The first formal Memorial Day dates from 1868 when General John A. Logan, commander of the Grand Army of the Republic, an organization of Union Army veterans, issued an order to all GAR posts naming 30 May as a day for "strewing flowers or otherwise decorating the graves of comrades who died in defense of their country." A montage symbolizing Memorial Day appears on the back cover; practical expression of the Nation's regard is given enduring form in "Our National Cemeteries."

"POWER FOR PEACE" is the keynote of the fourth annual Armed Forces Day scheduled for 16 May. Secretary of Defense Charles E. Wilson has designated this as "a time for tribute to the teamwork of the Armed Forces, to the unity of the American people, and to the power and principles for which they stand in the world-wide struggle for peace."

READINESS TRAINING for Regular and reserve components continues on a year-around basis. "Military Training—World War II and Korea" tells how Army Field Forces employs battle realism in preparing troops for combat. Planning and preparation required before "A Guard Regiment Goes to Camp" is described by a unit commander of the 42d Infantry Division. Gun crews in strategic centers across the country maintain constant alertness to strike back at invaders from the skies, as reported in "Antiaircraft Weapons Protect Industry."

"THE PUBLIC INFORMATION OFFICER is not a propaganda machine. He can only show the Armed Forces as they are," the Army Chief of Information declares in "The Commander and the Press." Major General Floyd L. Parks emphasizes that prestige and public confidence in the Armed Forces must be generated by "sound policies, sound projects and good conduct." An accompanying article on "Public Information—A Command Function" suggests how the commander can best arrange his staff organization to fulfill his public relations responsibilities.

AIR FORCE AUXILIARY. Major General Lucas V. Beau literally grew up with aviation. Since entering on active duty as a flying cadet in 1916, he has logged more than 7000 hours flying everything from the Curtiss JN4-Jenny of World War I to the B-17 Flying Fortresses and B-24 Liberators of World War II. For the past five years, as National Commander of Civil Air Patrol, he has been active in developing air-mindedness among the Nation's youth. How this organization is fostering the skills and spirit that will assure continuing air supremacy is the theme of "Civilians Patrol the Skies."

OFFICER-ENLISTED RELATIONSHIPS are analyzed in "Rank Has Its Responsibilities." Vice Admiral Hewlett Thebaud, USN (Ret.), finds that an "authoritarian paternalism," in which discipline is combined with understanding leadership, makes for efficiency, morale and fighting spirit.

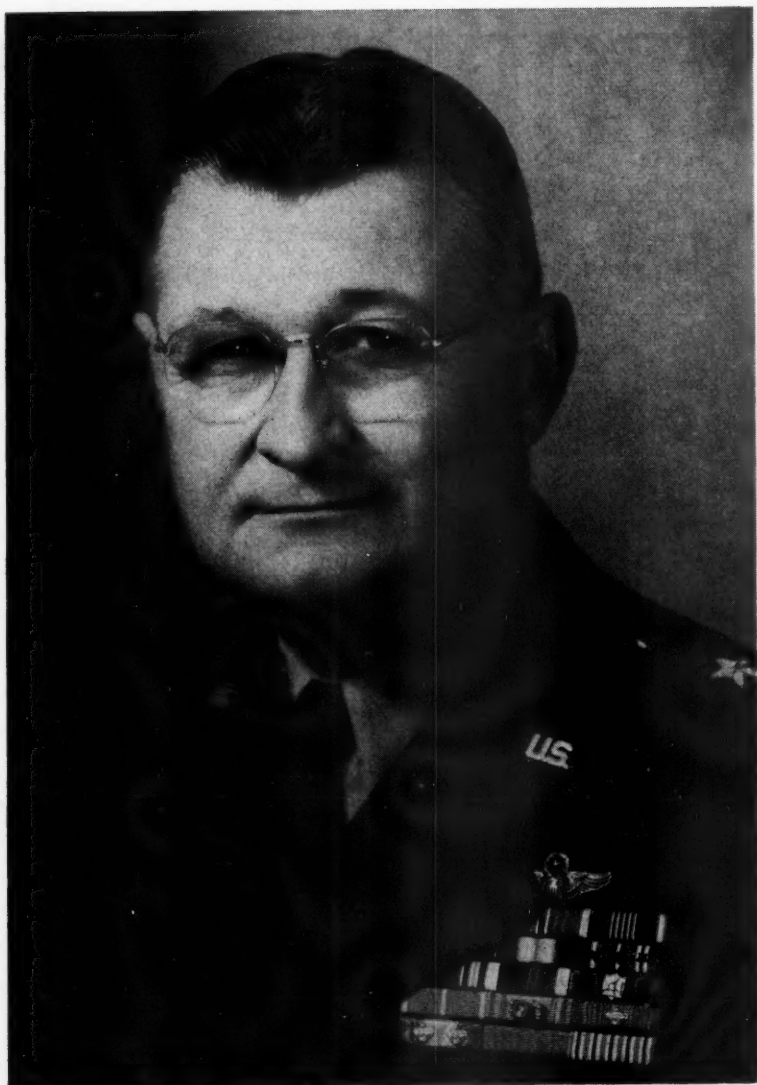
ARMY INFORMATION DIGEST

Vol. 8 No. 5

May 1953

CONTENTS

Civilians Patrol the Skies	3
<i>Major General Lucas V. Beau, USAF</i>	
Rank Has Its Responsibilities	11
<i>Vice Admiral Hewlett Thebaud, USN (Ret.)</i>	
The Commander and the Press	17
<i>Major General Floyd L. Parks, USA</i>	
Public Information—A Command Function	21
<i>Commander Arthur H. Ashton, USN</i>	
Military Training—World War II and Korea	25
<i>Lieutenant Colonel John T. Collier, USAR</i>	
Our National Cemeteries	33
A Guard Regiment Goes to Camp	37
<i>Colonel A. D. Reuthershan, NGUS</i>	
Antiaircraft Weapons Protect Industry	43
<i>Esther Pastalove</i>	
Developments in Military Bridges	47
<i>Colonel David G. Hammond, USA</i>	
From Clubs and Spears to Automatic Weapons	53
<i>Lieutenant Colonel George M. Chinn, USMC</i>	



U. S. Air Force Photograph

MAJOR GENERAL LUCAS V. BEAU

CIVILIANS PATROL THE SKIES

MAJOR GENERAL LUCAS V. BEAU

AN AIRPLANE is down—within a matter of minutes Civil Air Patrol volunteer pilots and observers are aloft, crisscrossing the area and reporting back to ground rescue specialists and aid crews who are standing by.

A hunting party is missing—Civil Air Patrol planes relieve the regular military forces of the onerous job of searching over many square miles of wilderness.

A flood threatens—Civil Air Patrol personnel take to the air on both rescue and observation missions.

A critically ill farmer is marooned by snow drifts—a Civil Air Patrol plane equipped with skis transports the patient to the nearest hospital.

These and dozens of other episodes from the day's headlines tell only a partial story of what Civil Air Patrol (CAP) is and what it does. In addition to its nation-wide operational mission, this entirely volunteer organization—an official auxiliary of the United States Air Force—carries forward a far reaching training program which is educating thousands of young people for positions of responsibility in this air age. Besides endeavoring to make all America more air-minded in peacetime, the CAP in time of war also performs anti-submarine patrol, border reconnaissance, patrol of watersheds, forest areas and industrial regions, as well as liaison and courier service.

As for the educational side of its activity, CAP today has nearly fifty thousand young men and women, ranging in age from 15 to 19, enrolled in its programs and is seeking a goal of one hundred thousand trained cadets. Its headquarters at Bolling Air Force Base near Washington, D. C. is staffed with military and civilian specialists who have developed a cadet program which is being hailed as the foremost air youth activity in the Nation today.

On the operational side, CAP's work consists of giving wings

MAJOR GENERAL LUCAS V. BEAU, USAF, is National Commander, Civil Air Patrol.

to defense on the home front. This includes air search and rescue under direction of the Air Force's Air Rescue Service and air lift activities for Civil Defense. CAP also provides aircraft spotting practice for the Ground Observer Corps; it performs radar tracking for Air Force aircraft control and warning units and Air Force filter centers; and it furnishes air lift for community, state and governmental agencies in time of disaster.

To maintain this vast program, a well-knit organization is required. Civil Air Patrol itself is a non-profit corporation operating under a Congressional charter granted in 1946. Legislation enacted two years later (Public Law 557—80th Congress) made the organization the "official civilian auxiliary of the Air Force." The Patrol is composed of volunteer, dues-paying members organized into wings, groups and squadrons similar in general structure to the Air Force. These units have no military status but are administered and controlled by members holding CAP grades comparable to those of the Air Force. At the head of the corporation is the National Executive Board under chairmanship of General Carl A. Spaatz, USAF, Retired, first Chief of Staff of the United States Air Force.



A Civil Air Patrol pilot briefs a cadet officer prior to taking off on an orientation flight.

U. S. Air Force Photograph

Aiding the National Executive Board administratively is a National Headquarters staffed entirely with Air Force personnel. This carries the official title Headquarters CAP/USAF and serves a dual purpose. First, it provides over-all guidance of training and administration to the civilian corporation and maintains liaison with military and other Federal agencies in acquiring supplies, equipment and other support. Second, it serves as a major air command staff for CAP's fifty-two field and eight regional liaison offices and co-ordinates their logistical and administrative problems.

The fifty-two wings correspond to each of the states, plus the District of Columbia, Puerto Rico and the territories of Alaska and Hawaii. Each is staffed by an Air Force officer, an administrative noncommissioned officer, another for aircraft maintenance and one civilian stenographer. The Air Force personnel exercise no command, however; they perform liaison and advisory duties only. The wings are grouped into eight regions, each with a liaison office staffed by Air Force personnel. These liaison offices are equipped with Air Force light transport aircraft for work in the regions and wings. A final liaison is furnished with the Air Force through the latter's Directorate of Training, Professional Education Division; in addition, the Board has access to the Office of the Secretary of the Air Force.

Civil Air Patrol traces its origin to the pioneer efforts of civic and air-minded leaders who, as far back as 1939, saw the need for such an organization to give direction to the abundant activity and enthusiasm in the civil aviation field. It was brought into being by Executive Order on 1 December 1941. In the early days of World War II, when ships were being sunk within sight of our Eastern and Gulf Coasts, the Air Force accepted the offer of aid from this new organization of civilian pilots. Soon fliers from all over the country were patrolling the coasts in their own light planes.

What the Minute Men were in 1776, these CAP fliers were in the months following the Pearl Harbor attack. From Maine to Mexico they hunted submarines off the coasts; they spotted ships in distress and survivors on life rafts. But the volunteers did much more. They flew the Rockies as couriers, performed rescue missions, spotted forest fires, worked with the Red Cross on mercy missions when disasters struck. They flew their tiny aircraft through storms and into thick coastal fogs. Their planes may have been low on horsepower but the men who flew them were high on morale and long on courage. Twenty-six of them



An Air Force officer instructs a group of Civil Air Patrol cadets in the fundamentals of air navigation.

U. S. Air Force Photograph

gave their lives while engaged in anti-submarine patrol work.

At least one high-ranking Nazi officer blamed "those damn little red and yellow planes" for the withdrawal of Nazi U-boats from American coastal waters early in 1943.

With the end of World War II, Civil Air Patrol continued serving in air search and rescue, disaster relief, Civil Defense, with the Ground Observer Corps and in other capacities. Today CAP is the right arm of Air Rescue Service, flying 77 percent of all domestic air search missions. This enables the Air Force to assign more of its Air Rescue men and planes to critical air lanes now traveled by American civil and military aircraft.

Training being given to the fifty thousand CAP cadets is of two types—military and aviation. In the military training phase, cadets learn drill and command, customs and traditions of the service, military courtesy and discipline, history and organization of the Air Force and associated subjects. Aviation training is governed by the *CAP Aviation Study Manual*, written by some of the Nation's top educators in aeronautics. It includes fundamentals of aeronautics, aerial navigation, communications and control, safety and control, management of airports and other subjects. Civil Air Patrol uses this manual in training its more than seventeen hundred squadrons for whom Army, Navy, Marine Corps and Air Force veterans, together with hundreds of reservists from all services, act as instructors.

Cadets also get a taste of military life through the annual encampment program. For ten days to two weeks each summer, thousands of boys and girls live the life of an enlistee in the Air Force. Upon completing the study course and attending at least one summer camp, the cadet is awarded a Certificate of Proficiency. A recent Air Force ruling makes it possible for a CAP cadet who has earned such a certificate to enlist in the Regular Air Force in the grade of Airman Third Class.

Two highlights of the cadet program are the National and the International Drill Competitions held annually. The team winning the former contest competes against the Air Cadet League of Canada.

Another important facet of the program is the International Cadet Exchange, designed to give aviation-minded youth of different countries an opportunity to know one another and to act as good-will ambassadors. Annually more than a hundred American cadets, chosen on the basis of merit and accomplishment, visit abroad as guests of comparable cadet organizations

in the participating nations. At the same time, Civil Air Patrol acts as host to members of the foreign groups. This year two new countries, Turkey and Greece, have been added. Other nations that have participated during the six years this program has been in force include Belgium, Brazil, Canada, Denmark, France, Great Britain, Holland, Italy, Luxembourg, Mexico, Norway, Portugal, Spain, Sweden and Switzerland.

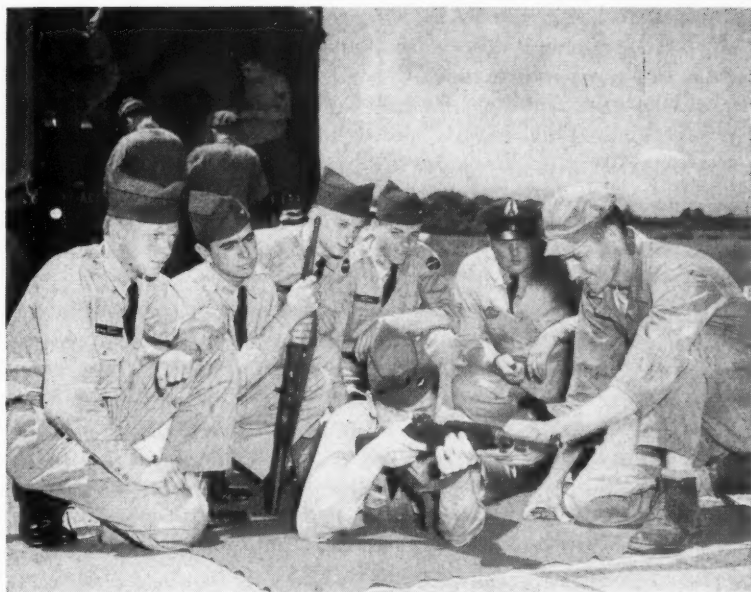
The program of making the Nation's youth air-minded is only one aspect of work in this field, however. A never-ending program of aviation education is carried on among senior members. They in turn are charged with stimulating air-mindedness in their home communities. Civil Air Patrol is continually engaged in the day to day task of promoting aviation generally and of indoctrinating the American public specifically in the implications of aviation as utilized by all of the Armed Forces.

A noteworthy project is the Aviation Education Workshop first conducted in 1952 under joint sponsorship of Civil Air Patrol and the University of Colorado. Attending were one hundred and fourteen teachers from twenty-nine states, Alaska, Hawaii and the District of Columbia.

Highlights of the workshop were field trips to local airports and to Eglin Air Force Base, Florida. The educators were flown to the Florida station in seven C-47 Skytrains. There they witnessed Air Force demonstrations of simulated aerial warfare employing the latest type of jet fighters and bombers. At local airports in Colorado the participants received a close-up of civil aviation in action; they witnessed the operation of a municipal airport serving main airlines and visited a small, fixed base catering to private fliers. The educators returned to introduce aviation education into their own schools and to lead similar workshops at community and state levels. Another such workshop will be held this summer.

At the beginning of 1953, marking Civil Air Patrol's twelfth year, the organization could put a total of 8291 light aircraft into the air in an emergency. These include 493 Air Force Liaison types—L-4, L-5 and L-16—which are considered on loan from the parent service; 181 similar types owned outright by the organization; 4844 owned by members and another 2773 committed for use by non-member owners. Of the total of 32,730 senior members, more than 15,500 are rated pilots and another 2400 are rated observers; fifteen are rated glider pilots.

During 1952 these members flew 85,845 hours on official missions, including searches for lost aircraft at request of Air Rescue



Arms familiarization and firing are included in training for CAP cadets attending encampments at Air Force bases. U. S. Air Force Photograph

Service; official search and rescue training missions known as SARCAPs (Search and Air Rescue, Civil Air Patrol); Civil Defense exercises flown in support of ground forces; radar tracking and sighting missions flown for the Ground Observer Corps, Air Force filter centers and Aircraft Control and Warning units; miscellaneous flights for Government agencies, and orientation and familiarization missions of the cadet program.

All of the members serve voluntarily without pay. The Air Force provides only fuel and lubricants for actual search missions, SARCAPs and a few other miscellaneous activities. CAP's light planes operate at an average cost of three to five dollars an hour, compared to the fifty to one hundred dollars to operate the heavier Air Force planes.

Besides flying aerial missions, CAP volunteers handle emergencies on the ground. As part of Air Rescue Service, its ground rescue specialists and first-aid crews can take to the field on a moment's notice. Their intimate knowledge of local topography and terrain features, coupled with the ability to fly low and slow, makes Civil Air Patrol the ideal search agency. Their proficiency is no accident; it is the result of intensive training under top Air Force rescue specialists. Annually each of the fifty-two wings is

required to stage one SARCAP problem, during which trained Air Rescue Service officers and airmen observe and grade the wings in their performance.

Still another mission of Civil Air Patrol is aircraft wreckage site-marking. This entails survey and marking of all known wreckage sites for quick identification from the air. This program assumes full importance during actual search missions, since unmarked wrecks are often mistaken for the object of an air search and valuable time may be wasted until ground parties make positive identification.

Of vital importance is the vast CAP communications network which blankets the Nation with 10,987 stations, both fixed and mobile. This net is so well organized that if every other means of communications should be knocked out, it could serve the Government and the military from coast to coast.

From CAP's national headquarters, the net fans out to the eight regional stations, thence to the fifty-two wing stations, and on down to unit level. A special procedure for licensing these stations was devised by the Federal Communications Commission, using frequencies allocated to CAP by the Air Force.

In every aspect of its operations, the Civil Air Patrol today is a full partner in the Department of Defense team that is waging the battle for national security. Besides training America's youth to live in the air age, it is equipping them with skills which will add to their combat efficiency if ever they are called upon to fight. Thus the Civil Air Patrol, official auxiliary of the United States Air Force, becomes an integral part of the air power of our country.

The Air Force recognizes the importance of aviation education to our national growth and development. Our civilian auxiliary, the Civil Air Patrol, has participated in this vital work. In their high school aviation education program, their cadet exchange program, in summer encampments, and in aviation education workshops the Civil Air Patrol has made a significant contribution to a national understanding of air power.

Lieutenant General Thomas D. White
Deputy Chief of Staff, Operations, United States Air Force

RANK HAS ITS RESPONSIBILITIES

VICE ADMIRAL HEWLETT THEBAUD

THE HISTORY of warfare through the ages has shown repeatedly and conclusively that disciplined crews in ships at sea and disciplined troops on land, other things being about equal, will always beat undisciplined forces brought against them. Not only that, but disciplined forces will stand and take it and come up from behind in the face of devastating odds in a manner impossible to the undisciplined. Disciplined forces may suffer defeat or even annihilation, but it is rare indeed in history that disciplined forces have given way to demoralization or panic.

To most Americans the word "discipline" carries with it the connotation of severity, unnecessary and unreasonable curtailment of freedom, endless restrictions and required adherence to the arbitrary, silly whims of authority. Actually discipline is the basis of true democracy for it means the adherence of the individual to a code of behavior which man in his great experience has found best to govern the relations between the individual members of society in order to protect the interests of the whole. We are all subject to one kind of discipline or another—in the home, at school, in offices, hotels, at the hands of traffic policemen; in fact, we even respect the wholly impersonal discipline of the traffic light. As society becomes more crowded, more complex, its internal discipline grows directly more exacting. In a Vermont hamlet of fifty souls there is little restraint of any kind—in lower Manhattan Island restrictive control of humanity reaches the maximum.

A naval ship like the carrier *Midway* for example, is 986 feet long, 113 wide and 75 feet tall from keel to main deck. Within that relatively small enclosed volume are crowded engines and boilers to drive her at 33 knots; many thousand tons of fuel oil and gasoline, ammunition, spare parts; machine shops; scores

VICE ADMIRAL HEWLETT THEBAUD, USN (Ret.), presented these views in an address before the June 1952 graduating class of the Naval Reserve Officers' Training Corps at Harvard University.

of airplanes with hangar space; guns, radars, navigational equipment; and a veritable maze of the most complicated, delicate and integrated electrical machinery known to man.

In that ship a crew of four thousand officers and men must work, eat, sleep, drill, fly off and land their planes, fight, get sick, be cared for, bathe and play. The prevailing congestion is unknown ashore, even in a state prison. There are problems of preparation and distribution of twelve thousand hot meals a day, of keeping such an entity clean and sanitary, of laundering the clothing and bedding of a community of four thousand, of constant care, upkeep and adjustment of machinery—all this and much more in addition to developing and maintaining a highly efficient fighting crew. Such problems stagger the imagination and require marvels of organization and control. They also require tactful, understanding leadership exercised by men who were taught to obey before they were allowed to command.

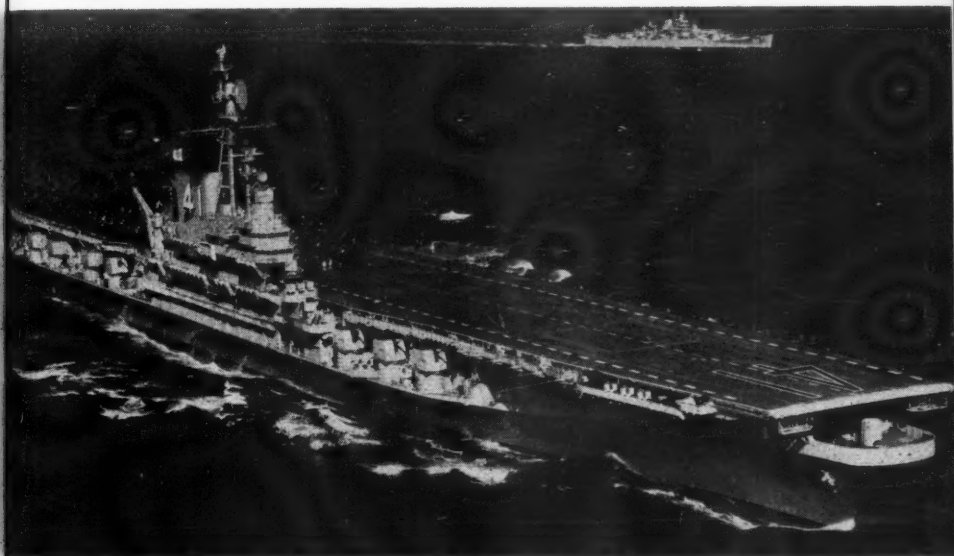
Midway, like any other man-of-war regardless of nationality, is as good as the men who man her—*no better*. And those men are only as good as their officers lead and deserve them to be.

To achieve the required results in efficiency, morale and fighting spirit, there must be the tightest kind of supreme control exercised by one man, the captain, and imposed on his subordinates through the instrumentality of intermediate officers and petty officers of varying ranks, capabilities and responsibilities. The captain, his officers and petty officers, unlike officials in civilian society, owe their positions not to votes, popularity or politics, but to having been arbitrarily appointed to those positions by the President of the United States or by his deputies. Their authority flows from the *Uniform Code of Military Justice* equally applicable to all of the armed services.

Naval society, as exemplified in the *Midway*, is in no sense democratic. Those who govern do so without the consent of the governed. Immediate, unquestioning and cheerful obedience *must* prevail. There can be no talking back, no arguments or discussion, no town meeting, no strikes, no leaving one's job at will. Where the safety of men, their very lives and that of the ship so often are at stake—not to speak of that often small difference between victory and defeat in war or the avoidance of disaster—there must be developed in all a state of mind which assures compliance with orders even when non-compliance may well pass unobserved.

Such a state of mind can best be fostered if relations between individuals are based on a fairly rigid system of codes of military

conduct or outward manifestations of respect, deference and courtesy, combined with a rising scale of privileges and comforts consistent with increasing relative seniority and rank. Hence the constant use of "sir" among and to officers; salutes; precedence of seating at mess, in small boats, in church, at the movies; different uniforms and indications of relative rank or rating shown by the amount of gold on officers' sleeves, or chevrons on the uniforms of enlisted men. "Rank has its privileges," it is true, but it always must be remembered that rank has its responsibilities too.



A complex community afloat, a ship like the USS Midway requires outstanding leadership and organization.
U. S. Navy Photograph

Such a human society as that in a man-of-war is almost wholly foreign to anything known to practically all American youth. But to be an effective fighting ship's crew, such a society must have fostered in it individually and collectively a most ardent sense of loyalty to a cause, to its ship and to those placed in authority over it. There must be an instinctive sense of duty in all, a sense of unfaltering personal devotion to do one's full job, whether checked upon or not. The shipmate spirit, like that of the musketeers—all for one and one for all—must be the foundation for the creation and cultivation of a highly developed integrated team spirit in the crew that will enable it not only

to win in battle but unflinchingly to face up to any situation, however grim, however desperate.

I have said that the Navy is in no sense a democracy. What it comes nearest to being is, I think, best called an "authoritarian paternalism,"—the most effective exercise of which can be achieved only by truly inspiring leadership at the hands of men worthy of respect and confidence. With the authority vested by law in officers there is an ever present, balancing and properly unavoidable personal responsibility. The manner and completeness with which that responsibility is accepted and discharged is largely a measure of the individual's capacity for leadership.

An old time boatswain's mate once said: "It ain't hard to be an officer, but it's damned hard to be a good officer." Nothing could be truer. Any citizen in the right age brackets—of good physique and with academic brains capable of passing the required mental tests—may become an officer, but it takes much more than mere brains to be a *good* officer. You can buy intellectual power on the street corners of any city, but the one attribute without which no man can be a successful leader cannot be bought anywhere—and that attribute is character.

The authority vested by law in officers may be used arbitrarily and not infrequently it must be so used. Admittedly it is sometimes unjustly used. It is comparable to the authority possessed by a traffic policeman at a busy street intersection. It must be exercised for the good of all in the interests of common cause.

That is where the "authoritarian" comes in.

The responsibility carried by officers is very real and ever present. Not only must they see to the care, maintenance and perfect operating condition of the guns, radars, boilers and engines in their custody, but they are constantly concerned with the training, efficiency, discipline and morale of the men who man and operate this equipment.

Even more demanding is their responsibility for the personal welfare of the men they are honored to command. It is on the officers that men must rely for their food, clothing, a place to sleep, recreation, liberty and leave. It is the officers to whom they must turn for guidance, training, advice, orders; and this demands the courage to make decisions—to assume and bear the consequences of responsibility. To whom else is a youth to turn for help and sound advice when he finds himself facing a problem which is a little too much for his years and his experience?

Will his officer give him a sympathetic hearing, or is that worthy too toplofty, too concerned with mechanical technicalities

to bother about the weakness of the one vitally valuable asset he has—his men? A good officer and true leader will leave nothing undone to help and support his men when they need help, to lead them when they need to be led, to punish when that, as a last resort, is necessary.

That is where the "paternalism" comes in.

In the cavalry, before horses were replaced by tanks, it used to be "horses first, men next, officers last." In the Navy, it is "ships first, men next, officers last."

I remember so well the manner in which a bluejacket expressed the concept of authoritarian paternalism after cruising the North Atlantic in a destroyer on convoy duty. He is well worth quoting as he speaks to officers in general. Said he:

"Do you feel capable of caring for us in a full gale when we have been rolling forty to a side for days, our bunks and lockers are sopping wet and the chow has begun to run short?

"Do you feel your responsibility at sea for our comfort, our clothing, our food, our lives?

"When the emergency comes, do you feel yourself able to estimate the situation, to take charge, to make a quick decision, to issue the necessary calm, clear, intelligent orders and see those orders carried out?

"Have you that something—whatever it may be—which will make us give you all we have if it becomes necessary for you to demand it?

"Stand out in front and look at yourself. Are you a quarter-deck ornament or a seaman? Are you big enough for your present job?"

If you feel that you are not fully qualified for your rank and that you must work hard to be worthy of your authority, you probably will become a good officer.

In all of this, I have tried to paint a picture of leadership as a combination of firmly exercised authority backed by law and given teeth by punishment but balanced by a warm, sympathetic understanding and unfailing paternalism for the benefit of those not always in a position to take care of themselves. By no means are all men, however intelligent, however well educated, effective leaders. But any decent, well-intentioned officer can prove by sincerity of effort and by practicing what he preaches that his heart is in the right place. He need not and should not rely exclusively on the authority of his commission or the stripes on his sleeve to inspire men gladly to obey, to respect and to follow him.

It is unfortunately true that the authority vested in officers at times is unjustly used. That is true in any military organization, under any flag. In all human society there are always some few people cursed with sadistic tendencies. American society is no exception. But the abuse, the prostitution of authority very positively is the great exception—not the rule. See to it that you are never guilty of it!

John Paul Jones, one of our great maritime leaders, told the Naval committee of Congress in 1775:

"It is by no means enough that an officer of the Navy should be a capable mariner. He must be that, of course, but also a great deal more. He should be as well a gentleman of liberal education, refined manner, punctilious courtesy and the nicest sense of personal honor.

"...Aboard ship and in relation to those under his command, he should be the soul of tact, patience, justice, firmness and charity. No meritorious act of a subordinate should escape his attention or be left to pass without its reward, if even the reward be only one word of approval. Conversely, he should not be blind to a single fault in any subordinate, though at the same time he should be quick and unfailing to distinguish error from malice, thoughtlessness from incompetency, and well-meant shortcoming from heedless or stupid blunder. As he should be universal and impartial in his rewards and approval of merit, so should he be judicial and unbending in his punishment or reproof of misconduct.

"In his intercourse with subordinates he should ever maintain the attitude of the commander, but that need by no means prevent him from the amenities of cordiality or the cultivation of good cheer within proper limits. Every commanding officer should hold with his subordinates such relations as will make them constantly anxious to receive an invitation to sit at his mess table, and his bearing toward them should be such as to encourage them to express their opinions with freedom and to ask his views without reserve."

THE COMMANDER AND THE PRESS

MAJOR GENERAL FLOYD L. PARKS

ABOUT THE FIRST THING I learned as Army Chief of Information was that the problem of securing the confidence of the public for the Armed Forces was very much the same as that faced by a big corporation. We both seek public support. That good public relations has commercial importance is illustrated by the fact that many companies which have no actual competition nevertheless spend millions of dollars annually on this activity alone. Even those who have no goods to sell do have services to offer and good-will to maintain.

We of the Armed Forces should frankly recognize that we have something to sell—service to the Nation. A good information program, whether for the public or the troops, tries to enhance the prestige of the services. We want to be known for what we are—a hard-working servant of the people. In order to secure this prestige and public confidence we must have sound policies, sound projects and good conduct. And we must let it be known.

You cannot depend on good deeds alone to tell your story. You have to get the facts to the public and get them out promptly. If you fail to do so, you are going to get rumors, leaks and half truths.

Here, then, are some of the principles basic to the commander's role in press relations.

As a commander of a unit, *you* are the public information officer. You may think the contrary because you have a man on your staff known as the public information officer or PIO—and presumably he is it. True, he can do the worrying and leg work for you, but only *you* are going to be the spokesman to news media. And when I speak of dealing with the press, I mean all information media—newspapers, newsreels, radio and television, magazines and books.

MAJOR GENERAL FLOYD L. PARKS, USA, is Chief of Information, Department of the Army.

Your press relations will be good, bad or indifferent, depending on how effectively you use the PIO and how carefully you study the local situation. When you do get your command, assign as PIO a man who knows press technique, just as surely as you insist on having a qualified G3 or G4. Then take his advice—or at least listen to it.

To the press, you are the man who carries the responsibility, and you are therefore the man to whom reporters turn for authoritative information. Have your PIO close to you, not only personally but physically. Maintain the same close personal relationship as with your aide. The worst thing you can do is to have secrets from your public relations officer. If he knows his business he may be able to help you; if he does not, he is working in a vacuum and he may even get you into trouble.

In handling press relations, practice preventive public information. By that I mean anticipate and avoid breakdowns before they happen. First be sure you have a good plan or product; then see that it is presented properly. Forestall unfavorable stories before they happen, if possible, through foresighted public relations. That requires careful staff planning. Current Army procedures provide that every staff study sent forward for approval will have a public information paragraph—either a plan indicating how it is going to be implemented or announced, or a statement that no public information aspect is involved.

A pre-planned public relations program can apply to anything from an operation the size of the Bikini test to the reopening of a post or air base. An outstanding example was the Army program for the return of the dead from foreign battlefields. As soon as Congressional sanction was received, a public relations task force was organized to work out a plan and a dry-run was staged. The program was then reviewed by the press, news media representatives and Army information specialists for any discrepancies or oversights. Months before a body was moved, we sent Army personnel to school for training in escort duty; we had training films prepared to show the steps involved. With few minor exceptions, the program went off without a hitch.

On the other hand, a great deal of trouble can develop if a plan is lacking. Some time ago I read newspaper accounts that an executive of a Reserve officers group took the Army to task for what he termed "inept budgetary planning," claiming

that it undermined the effectiveness and morale of the Reserve forces. When we were able to explain that the program had been curtailed only because funds were lacking to carry it on through the remainder of the fiscal year, the atmosphere cleared. Of course this could and should have been explained ahead of time. Later when a new Reserve program was ready to be implemented, the Army Public Information Division drew up a brochure, sent speakers to every Army Area, and explained the program fully to each Military District Commander before it was announced publicly. Then every member of the Reserve understood what was going on.

Public opinion of the Armed Forces is by and large a reflection of what the Armed Forces do. It is as simple as that. Many people mistakenly think that the primary public information mission is to suppress unsavory stories or at least counter them with favorable releases. In reality it is not possible to suppress news, whether good or bad, and it is poor policy to try. Any such attempt usually results in a distorted story. A reporter gets part of the facts; it is news and he is going to print it. As a spokesman for the Army, your role is to get all the facts out fast so that they are available to the reporters. If the total effect is bad it is to be regretted. But if there are any good or constructive aspects, at least they can be included with the initial story.

Remember that the public information officer is not a propaganda machine. He can only show the Armed Forces as they are. You cannot put a good face on an ugly fact, nor can you call back a bad story once it is in print. The correction or explanation never catches up with the original story.

It is an axiom that you must have complete frankness and a reputation for honesty in dealing with news media. I learned early that newsmen were smarter individually than I was, and collectively I could not hope to compete in the same league. I wanted no battle of wits with them; the only logical course of action was to be straightforward, honest and to tell the truth. Therefore if the story is bad, I admit it; if it is good, I try to see that the good points are known—and speedily.

Be willing to admit errors. News media representatives know we are all human, that we are going to make mistakes; but if you try to bluff when you are actually out on a limb, you are making a tremendous mistake. As former Secretary of the Army Frank Pace, Jr., put it, he has seen nobody get in trouble for admitting an error, but he has seen people in hot water for years trying to cover up.

While the commander has an obligation to build up confidence in himself by being truthful and open in his dealings with news media, he must recognize that this relationship works both ways. He should learn to trust press representatives. The bona fide correspondents will not let you down. There is always the exception but he is rare. You soon learn to spot such men; the other correspondents know them, too, and avoid them.

Impatience with, or neglect of, correspondents in the field can sometimes boomerang. Correspondents may complain that they cannot do justice to an organization because they do not have free access to military transportation and communication facilities. All they ask is a reasonable amount of help. The commander must see that they get it. Even in the zone of interior the press sometimes has a difficult time. Not long ago one writer found that an officer on night duty refused to make available the Army pay scale which is printed in a public document. Result—a nasty story.

The time element, too, is important in dealing with the press. The news business is perhaps the most highly competitive enterprise in the country. The reporter has to file his story in time to make an edition; and if he does not file the story and somebody else does, he jeopardizes his job. Remember that minutes count with newsmen. As one reporter told me shortly after I had taken over my job, "We are in a competitive business. We want a man who is on the job all the time and a man we can call on day or night and get the answer quickly."

Newsmen frequently call me at all times of day or night. But I never get out of patience; I get the honest answers as fast as I can. By doing so, I find that confidence is built up and support generated. Remember this if you are ever tempted to brush off any newsman's queries.

The high opinion in which the Armed Forces are held will continue only so long as we deserve it by our individual and collective good conduct. Even so, this confidence and support by the public can continue only so long as we get good and factual reporting.

PUBLIC INFORMATION-- A COMMAND FUNCTION

COMMANDER ARTHUR H. ASHTON

ANY SENIOR OFFICER of any of the services today faces two likely probabilities in the field of public information. One is assignment as an active public information officer; the other is that of being in command and therefore responsible for the public information functions of his command.

In the first instance there is no reason for apprehension concerning the impact of such an assignment professionally; it can and should be another step in the ladder of progress toward the goal of all-around proficiency as a military man.

In the second case, the officer who commands a unit is clearly responsible for the public information functions, although he probably will name a public information officer to his staff. General J. Lawton Collins, Army Chief of Staff and himself a former Army Chief of Information, has declared, "The commanding officer or the commanding general must establish a sound policy. Whatever he is doing he must personally keep track of and keep an ear out for the reaction of the public in the community alongside. He must take the leadership then in the public relations field—and there is no substitute for that, I can assure you."

It becomes clear then that both the commander and his public information officer must be deeply concerned with the place that public information is to occupy in the command program. The officer receiving a public information assignment is, of course, most directly affected since he is the medium through which the program becomes a reality. But it is equally important that the commanding officer recognize the necessity for making his PIO both his adviser and his advocate and, by example as well as precept, insuring that he has complete and direct access to all information about policies, plans and operations of the command. Yet a glance at organization charts

COMMANDER ARTHUR H. ASHTON, USN, is Director of Public Information Training, Armed Forces Information School, Fort Slocum, New York. Prior to that assignment he was Assistant for Public Information, Eighth Naval District.

of various units shows considerable difference of opinion as to the exact place the PIO is to fill and his relations to the commander and to other staff officers and sections.

In considering the role of public information in the command structure, one may well survey the opinions of civilian leaders in the field of public relations. This is especially pertinent since the Armed Forces have freely employed the basic techniques of business in evaluating human relations and the forces that mold public thinking. Both commerce and industry have reached some solid conclusions. Paramount among them is the principle that public relations personnel must have a voice in the management of any organization actively concerned with establishing good public relations.

A survey of the business field reveals the tendency today to regard public relations as a function of executive management. One textbook on the subject puts it this way: "Public relations begins at the top where policy is made. In business and industry, public relations is a responsibility of management. In government and social organization it is a function of administration. In military affairs it stems from command."

Since there is no question as to who will be held responsible for public relations in a command, no doubt should exist as to the treatment to be afforded the staff section that is expected to execute a sizable portion of the commander's public relations policy. Nobody expects any other staff member to function effectively in an informational vacuum. Unless there is a full and frank exchange of information among the commander's staff, both he and they are hopelessly handicapped in carrying out any plan, policy or operation. Yet difficulties frequently arise because the commander has neglected to define exactly the staff status of his public information officer.

Where no clear concept and recognition of the value of an effective program exists, PIO's are frequently expected to channel all matters through several intervening echelons before they reach the commander's eye. Where one is able to deal directly with the commander, however, a far different situation prevails, reflecting a complete understanding of the PIO's position and responsibility.

The place of the public information officer in the Navy—at least in Naval Districts (which are comparable to the zone of interior Army Areas)—has been set by directive within the Standard District Staff Organization. This directive removed

the PIO from the jurisdiction of the Assistant Chief of Staff for Administration and placed him directly under the Commandant. He was renamed the "Assistant for Public Information" and became responsible to the Chief of Staff only for such matters as the Commandant might direct. The PIO is thus a part of the official family at the policy, operating and planning level. It is by no means a one-way route since the PIO acquires responsibilities to keep staff sections posted on plans and activities, particularly those having any bearing on the duties and plans of another staff section.

Such a staff set-up at any level is strongly recommended. If it already exists, the commander should insist that subordinate commands adhere to the same principles. It is futile to have good fire prevention at the top level if time and energy must be spent in putting out fires started at lower levels.

In a truly effective public information section two vital relationships are involved—internal and external. Both must be predicated on a sound policy and a comprehensive program which the commander himself supports vigorously and which the PIO and other staff officers follow meticulously. A good public relations program cannot be sustained without good internal relations. These must begin at the top. Walking a tight rope of public opinion, as may often be the case, the commander needs expert assistance. But he cannot have it if internal staff relations deny full information to his public information officer.

External relations, good or bad, are based upon the psychological and sociological processes of public opinion. The commander and his public information officer must study the many publics confronting them. They must anticipate the responses to any of several possible approaches. Good external relations are based on cordial and reciprocal understanding between the military organization and the community to which it belongs and which it serves. The commander and the PIO are the essential catalysts in bringing this about.

A commander must always remember that the public information officer cannot substitute for him as a personality in cultivating a sympathetic public attitude. The commander exerts the greatest single influence in relation with nearby communities. At the operational level, the public information officer must perform such functions as establishing liaison with local civilian leaders and groups; providing local news media with informa-

tion, and establishing cordial relations with all media; conducting press conferences, reviewing security aspects of information; and controlling public relations aspects of special events.

To be fully effective, a public information officer should have certain qualities. He should have command support in fulfilling his duties so that he may himself fully support the command. He should have a broad understanding of news media and an instinctive grasp of the elements of human relations and public attitudes. He should have the ability to meet and work harmoniously with the press and public and with other staff officers; and finally he should have the administrative ability to supervise his staff sections.

Having selected the right man for the job, the commander must trust him and work with him. Not only must he initiate a sound policy; he must insist that the entire command be fully aware of it and adhere to it. As a further step the public information section should be required to work out a detailed and workable public relations plan based on the over-all policy.

The commander should leave the writing of material to the PIO—especially if he has had experience along that line. He should avoid making unreasonable demands such as "Kill that story" after it has gone to press—or "I want this on page one." In essence, his guidance should enable the PIO to prevent crashes instead of merely picking up the pieces after one.

In dealing with the press, the commander should be ready to release the truth but if real security is involved, he must frankly say so.

In making his selection, the commander must always remember that the public information officer is the person to whom he entrusts the good name and reputation of the entire command. Having selected a qualified PIO, the commander must see that he is properly fitted into the command structure. Then both the commander and the PIO may function effectively in fulfilling the obligations attached to public information at the command level.

MILITARY TRAINING-- WORLD WAR II AND KOREA

LIEUTENANT COLONEL JOHN T. COLLIER

AN INFERNO of fire and steel smashed the enemy defenses at Saint Lô. As American tanks rumbled through the broken Nazi lines towards the heart of France they passed many American soldiers who had won victory but lost life. One of them was a general of great skill and vision who had directed the training of the Army's combat forces. True to his beliefs, Lieutenant General Lesley J. McNair, commanding Army Ground Forces—the wartime counterpart of today's Army Field Forces—risked and lost his life while observing with the front-line troops.

The story of General McNair's efforts and the role of his headquarters is one that has seldom been told. Millions of people are familiar, however, with the methods employed in training the World War II soldier and with the remarkable efficiency demonstrated in changing a civilian into a battlewise soldier. Those methods produced one of the finest armies in all history.

A comparison of the training of today's combat soldier with the successful training practices of World War II tends to confirm the belief that progress and improvement come about through evolution rather than revolution. While basic concepts of troop training now do not differ greatly from those of the war years, sufficient changes in methods and emphasis have taken place to indicate that the Army is highly sensitive to specific troop training needs and that its policies change to keep abreast of those needs.

World War II saw the centralized direction of training come into its own. This was the answer to the situation which faced Army Ground Forces in 1942.

In August 1940, with all of Western Europe except Great Britain conquered by the Nazi military machine, the United States was not even a third rate military power. As late as March 1941, when our combat arms replacement training centers began to function, the Army was made up mainly of inexperi-

LIEUTENANT COLONEL JOHN T. COLLIER, USAR, prepared this article while on active duty training with Office of the Chief of Army Field Forces.

enced personnel. Many of our officers were still learning how to be officers. Our troops were being trained with scant equipment.

To cope with the severe shortages of experienced instructors and up-to-date equipment, these resources were centralized, making it possible to improve and accelerate individual and specialized training. Centralizing the *direction* of training made it possible for soldiers trained in different parts of the country to be welded together effectively in combat units. Uniform standards were thus achieved throughout the Army.

By a consistent program of basic training in its twenty-one replacement training centers, Army Ground Forces was able to turn out a steady flow of trained soldiers. Between March 1942 and July 1945 these centers supplied some two and one-half million ground soldiers to Army units.

Wartime combat arms training was controlled by Army Ground Forces through broad general directives and Mobilization Training Programs. Throughout World War II these methods evolved continuously in accordance with the changing needs of the Army's combat units.

When the formation of eighty-nine combat divisions to be sent overseas in World War II was completed, the primary role of the centers became that of training individual replacements for units overseas.

Important changes were therefore effected to reduce the gap between the training of ground soldiers for combat and the grueling actualities of combat itself. Obstacle courses were made to resemble the battlefield. To teach house-to-house fighting, entire villages were constructed similar to those that the men would find overseas. On infiltration courses, trainees crawled beneath barbed wire entanglements under machine gun fire and were jarred by exploding TNT to accustom them to the sights, sounds and smells of battle. These techniques, proven by application on an enormous scale in World War II, were given tremendous impetus by Army Ground Forces in its operation of the replacement training centers. A group of civilian educators, after a study of military training methods, estimated that the Armed Forces in six years created six times the quantity of audio-visual aids used in all civilian educational institutions up to that time. These aids continue to play an important part in Army training. (See "Training Aids for the Asking," April 1952 DIGEST.)

In August 1943 the training cycle in all replacement training centers was extended from thirteen to seventeen weeks. This

made it possible to devote at least six weeks to teaching the fundamentals that soldiers must know, and then eleven weeks to developing skills for specific tasks in fighting units. A two-week period was spent in the field where trainees bivouacked and engaged in exercises under simulated combat conditions.

Supervision over replacement training by Army Ground Forces was guided by five basic principles, established early and adhered to throughout World War II. In general, these principles are applicable to the Army's training today:

1. The individual must learn to work and fight as a member of a team. Throughout all aspects and levels of training this concept of teamwork is constantly emphasized.

2. The troop commander himself is responsible for training, rather than the specialist who might actually conduct it. This reflects the basic military principle of personal leadership.

3. General military proficiency is stressed. Create the soldier first, the technician later.

4. Rigid performance tests are given to insure uniformity, adjustment to exacting standards and the earliest efficient completion of the training mission.

5. Realism characterizes all training whenever possible. Live ammunition and rugged training areas are concrete expressions of this fundamental requirement.

One of the major differences between the training during World War II and the present lies in the organizational structure provided for supervising and co-ordinating training activities.

Army Ground Forces, in the early 1940's, was one of three major elements concerned with training in the Army—the other two being the Army Air Forces and the Army Service Forces. The last of these, which ceased to exist after World War II, was responsible for training personnel of the Administrative and Technical Services. With the formation in March 1942 of Headquarters, Army Ground Forces, that agency was made responsible for the actual operation of the Army's far-flung combat arms replacement training centers. It controlled these centers through four subordinate commands—the Replacement and School Command and the Chiefs of the Armored Force, the Tank Destroyer Command and the Antiaircraft Command.

The largest of these was the Replacement and School Command which was given direction of replacement training centers and service schools for Infantry, Cavalry, Field Artillery and Coast Artillery. In February 1944 the Armored Replacement Training Center and The Armored School, which had operated



Green-garbed Aggressor troops act as opposing forces to add realism to training.

U. S. Army Photograph

MILITARY TRAINING

29

directly under Headquarters, Army Ground Forces, also were placed under the Replacement and School Command.

On 10 March 1948, Headquarters, Army Ground Forces, was redesignated as the Office, Chief of Army Field Forces (OCAFF) and its responsibilities were modified to relieve it of certain command and administrative functions. While retaining the vital function of supervising training within the Army, the new organization was not an echelon of command.

A further revision of OCAFF's operational charter, announced in general terms by the Army Chief of Staff in September 1949 and ultimately published in detail in SR 10-51-1 (11 May 1950), stated the training responsibilities of the Chief of Army Field Forces more definitely. His responsibilities were expanded to include direction of the training of individuals and units of Administrative and Technical Services utilized by the Army in the field as well as those of the combat arms.

Under the principle of decentralization of responsibility (not to be confused with *centralized training*) actual conduct of training is delegated to continental Army commanders and to Chiefs of the Administrative and Technical Services, who operate the facilities at which training is carried on.

Today, flexibility and decentralization are distinguishing features of the Army's training activities. Again in keeping with the policy of maximum decentralization of responsibility, training commanders down to post, camp and station level are assigned specific training objectives for both individuals and units. Using prescribed programs as guides rather than as fixed directives, commanders are held responsible for the attainment of these training objectives.

The Army is now staffed in all of its echelons by experienced commanders capable of exercising sound judgment in carrying out their training missions. Many are veterans of Korean action and are assisted by highly trained noncommissioned officers recently returned from the combat zone.

Training the Army is the over-all responsibility of the Chief of Army Field Forces—General John R. Hodge. The Office, Chief of Army Field Forces is the field operating agency of Department of the Army. OCAFF's over-all mission is to train the fighting and supporting elements of the United States Army through direction, supervision, coordination and inspection of all matters pertaining to the training of individuals and units utilized by the Army in the field, including Reserve and National Guard as well as Regular Army components. OCAFF

exercises direct control of combat arms schools. It controls other schools through the chiefs of the appropriate Administrative and Technical Services, except those few schools supervised directly by Department of the Army or Department of Defense. Army instruction in schools of the other services is also supervised by OCAFF.

For the Army in the field, OCAFF develops doctrines and techniques for combat and support units and exercises general direction over organization and composition of units; it also initiates requirements for and makes field tests of weapons and equipment. In co-ordination with the other services, OCAFF plans and supervises the Army's participation in joint maneuvers and exercises.

OCAFF responsibilities are carried out through the principle of decentralization to the commanders of continental armies, oversea commanders and chiefs of the Administrative and Technical Services.

Replacement training for the combat arms is currently being conducted in nine training divisions and two replacement training centers in continental United States, and in two replacement training centers overseas. Replacements for the Administrative and Technical Services are developing their skills in one training division and nine replacement training centers, all in continental United States. Members of the Women's Army Corps are trained at the WAC Training Center, Fort Lee, Virginia.

Current training policies of the Army, which govern training activities in the replacement training centers as well as in all other units and installations, are set forth in Department of the Army Circular 1, published 27 February 1950. Although these policies were enunciated prior to Korea, it is significant that with minor modifications they remain applicable to the situation and needs of today. (See "A Soldier's Business is Combat," November 1952 DIGEST.)

Certain of these policies represent concepts which had been largely absent from training literature following World War II. Among its provisions, Circular 1 called for:

Elimination of nonessentials. "Because time is all-important during mobilization, training requirements must be reduced to essentials and lost motion must be eliminated from training methods."

Training in peace as for war. "Training in peacetime must be conducted as in war to insure that mobilization training is an expansion, not a revolution, of peacetime training."

Combat for all soldiers. "The primary training mission is to teach men how to fight. Every soldier regardless of assignment must be taught that he has as his primary duty the obligation to fight. All able-bodied soldiers are taught in the fundamentals of basic infantry combat to include squad tactics."

Other training policies set forth in present doctrine, while not wholly new either to OCAFF or to the Department of the Army, are of special interest because of the increased emphasis that they are now receiving. These include:

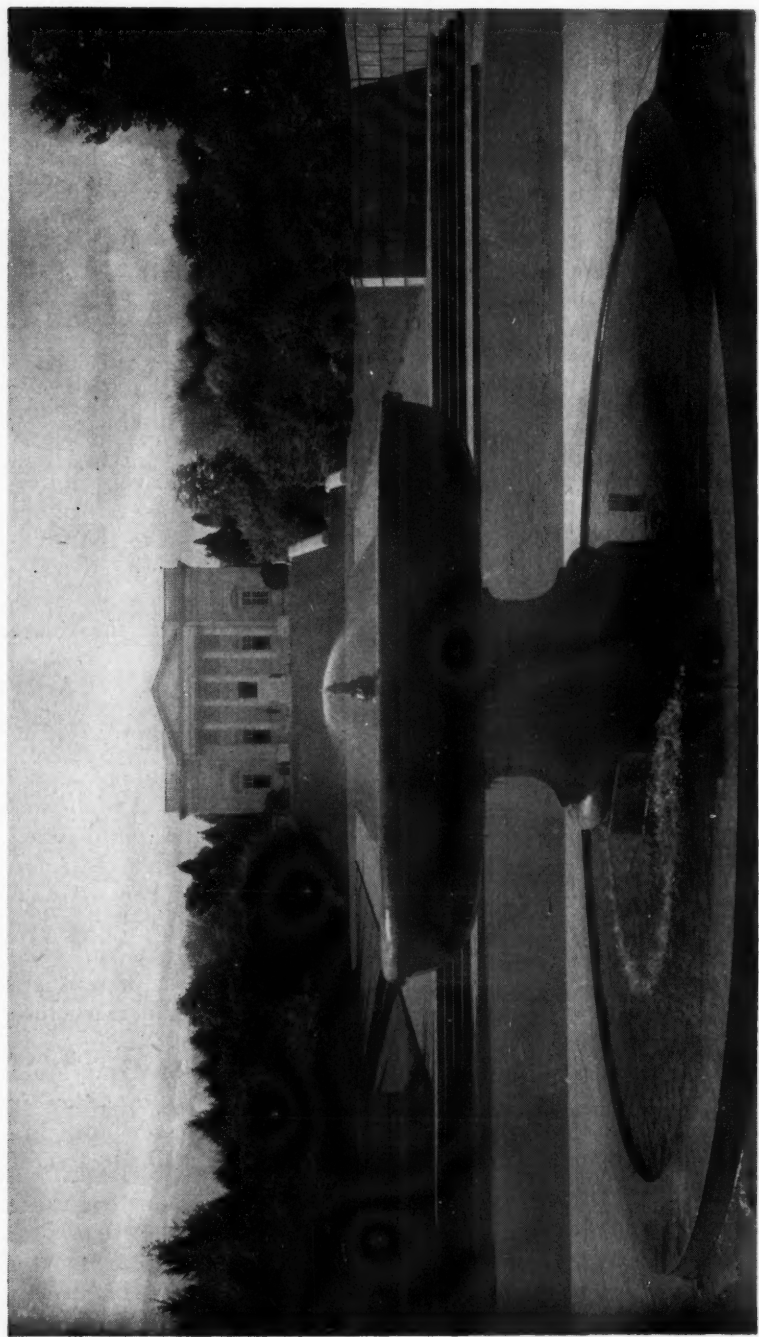
Training for specialized operations. "Training specialized as to terrain, climate or other factors will be prescribed . . . for specific units. This will include Arctic, mountain, desert, jungle, and others as appropriate . . ."

Combined arms training and air support. "Every opportunity must be taken to bring the arms and services together during training. Particular attention must be given to the training of battalion combat teams, emphasizing . . . thorough training . . . in offensive operations with all available armor and artillery support and with tactical air support to the maximum obtainable."

Joint and special training. "So far as practicable . . . Army commanders will conduct joint and special training appropriate to the mission of their commands. Particular emphasis will be placed on air-ground and air-transportability training."

Night training. Training for tactical operations at night was common practice during World War II, but was not emphasized during the post-war period until experience in Korea indicated the need for more training of this type. In July 1950 OCAFF directed that "sufficient training will be conducted during the hours of darkness to insure the ability of individuals and units to operate efficiently under these conditions." At present approximately one third of the individual and team performance portion of tactical training is conducted at night.

The soundness of all of these basic principles of Army Field Forces training doctrine—shaped to fit the needs of today—is being confirmed wherever Army units are stationed. More important, perhaps, it is being validated by the ultimate test of combat in Korea.



The Unknown Soldier's Tomb occupies a commanding elevation overlooking the city of Washington.

U. S. Army Photograph

OUR NATIONAL CEMETERIES

WITH EVERY WAR and each passing generation of veterans, our national cemeteries have grown in number, in size and in significance. Today more than six hundred thousand persons are buried in ninety-seven permanent sites from Alaska to Puerto Rico, and present figures indicate that more than nineteen million living veterans are eligible under the law for similar burial.

This is a significant outgrowth stemming from the first steps taken by the Congress in 1862. On 17 July of that year, Congress approved a bill authorizing the President "to purchase cemetery grounds . . . for the soldiers who shall have died in the service of the country." Under this enabling legislation, the War Department initially established fourteen national cemeteries including those already existing at Fort Leavenworth and Fort Scott in Kansas and at the Soldiers' Home in Washington, D.C. Subsequently it was decided to transform the sites of major battles into national cemeteries. The battleground near Sharpsburg, Maryland, was set aside for those who fell in the Battle of Antietam. The Battle of Gettysburg was memorialized by a national cemetery there, dedicated by President Lincoln. In May 1864, the Secretary of War directed that "a new site be selected on Lee's farm at Arlington, Virginia." This marked the beginning of Arlington National Cemetery.

On 13 April 1866, Congress authorized the Secretary of War to preserve the graves of Civil War dead from desecration by enclosing the grounds with fences and appointing a superintendent to mark graves and keep records. When the Civil War ended, the Army Quartermaster General was made responsible for collecting the scattered dead from the battlefields, identifying and burying them. By 1868, there were seventy-two national cemeteries, most of them in the South, with some three hundred thousand graves.

Clearly, the original plan behind these cemeteries was to provide a resting place for those who had served their country in time of war. But as the years passed, this concept was broadened considerably. Today the privilege of such burial is extended to members of the Armed Forces who die on active duty or after retirement or honorable discharge. This includes men and women who have served with the Army, Navy, Marine Corps, Air Force or Coast Guard, and, under certain circum-

stances, personnel of the Coast and Geodetic Survey and the Public Health Service.

In fact, service with the Armed Forces is not a sole prerequisite. A United States citizen who fought with an Allied country in a war in which the United States was engaged is eligible if such service was terminated honorably. Confederate Army veterans are also included and may be buried at any of three locations—at Arlington, Virginia, Springfield, Missouri, or Little Rock, Arkansas. Certain cabinet members, too, who served between 6 April 1917 and 11 November 1918, are entitled to burial, but at their own expense.

Burial of wives and dependent minor children of servicemen was accomplished through military custom from frontier times until 1948 when the custom was accorded Congressional sanction. Regulations promulgated pursuant to Public Law 526 extended burial privileges to unmarried adult children of members or former members of the Armed Forces if at the time of death, such children are dependent for support upon the service-connected parent or surviving spouse because of physical or mental condition. Of course these eligibilities are contingent upon the service spouse or parent being buried in the same or in an adjoining grave site to that in which the child is interred.

Service personnel who die while on active duty qualify automatically. In all other cases, surviving relatives must furnish evidence of eligibility to the superintendent of the national cemetery in which interment is desired. No grave sites are assigned in advance unless a surviving husband or wife makes a written request to be buried adjoining his or her spouse. In such cases, an adjoining grave site, if available, is set aside.

There are no charges for the grave site or for services incidental to the actual interment. Except in the case of service personnel who die on active duty, other expenses including transportation of the remains to the national cemetery must be borne by the relatives or estate of the deceased. Markers or headstones are furnished by the Government. In all new cemeteries and new sections of the older ones, the erection of private monuments is prohibited. Designs and specifications for private memorials which are authorized must be approved in advance.

Normally the Government furnishes a standard white headstone or marker, surmounted by the Latin Cross, Star of David or other approved religious symbol. Each marker is inscribed with the name, rank, organization, and date of birth and death. The home state and certain approved decorations may also be



This memorial to Army and Navy nurses is located at Arlington National Cemetery, across the Potomac from Washington, D. C. U. S. Army Photograph

inscribed if desired. Since 1946 "World War I," "World War II" or "Korea," as appropriate, have been inscribed on the stones. Of all the persons buried in national cemeteries, approximately one fifth—mostly Civil War dead—are unidentified.

All of these cemeteries follow the same policy for visitors and special events. Each year on Memorial Day all graves are decorated with small flags and the national flag is flown at half staff from sunrise until noon, and at full staff from noon until sunset. Patriotic organizations may hold services on Armistice Day, Easter Sunday and other special occasions. During the winter months, gates are open from 0730 to 1700; from April through September the closing time is extended to 1900. Floral decorations may be placed on the graves at any time.

Most of our ninety-seven national cemeteries are in the South and West. Many of their names—Shiloh, Fredericksburg, Yorktown and Gettysburg—echo the military history of our country. The Department of the Army supervises eighty-five

of them and the remaining twelve, considered historic sites, come under the Department of the Interior. The three national cemeteries established in Alaska, Hawaii and Puerto Rico were established or expanded principally for World War II dead but are now available to veterans, members of the Armed Forces who die on active duty, and other eligibles.

Besides those located in the United States and its possessions, there are eight permanent American military cemeteries for World War I dead in Europe under jurisdiction of the American Battle Monuments Commission. In 1947, fourteen permanent cemeteries for World War II dead were designated—five in France, two each in Belgium and Italy, one each in England, Holland, Luxembourg, North Africa and the Philippines. After the Army Quartermaster General placed these sites in condition, they were turned over to the Commission for perpetual care.

As the number of men and women who serve in our Armed Forces grows, there is a gradual but marked increase in applications for burial of veterans in national cemeteries. Currently there are approximately 108,000 living Spanish-American War veterans, 3,500,000 World War I veterans and 15,500,000 World War II veterans who are entitled to this privilege—a fact which augurs increasing importance and significance to this little known phase of Army activities.

"Here where the grim edge of battle joined; here, where all the hope and fear and agony of their country centered; here let them rest, asleep on the Nation's heart, entombed in the Nation's love."

*General James A. Garfield at the
first official observance of Memorial Day,
Arlington National Cemetery, 1868.*

A GUARD REGIMENT GOES TO CAMP

COLONEL A. D. REUTHERSHAN

A MAJOR PROBLEM facing any National Guard commander is the planning and preparation for the fifteen-day summer field training period of his unit. In my particular case, twelve hundred young citizen soldiers—members of the 71st Infantry of the 42d Infantry Division, New York National Guard—will report to our armory in the heart of New York City during the pre-dawn hours of a Saturday morning in August 1953. Changing from civilian clothing into uniform, they will pick up their previously issued individual weapons and field equipment and at 0600 will assemble on the drill floor. Here the Senior Regimental Chaplain will ask God to protect these young Americans and give them the will to serve their Nation well. Then the regiment will march a short eight blocks to Grand Central Terminal where it will entrain for Camp Drum at Watertown, New York.

Even before we leave the armory, my personal responsibility begins. I am taking twelve hundred young Americans away from the security and safety of their homes. I am responsible for their movement on a 600-mile round trip by rail, plus that of the advance detachments and motor convoys which moved out several days before. All must be properly fed and housed, both indoors and in bivouac, and en route going and coming. They must carry out a strenuous training program. Their morale, religious welfare and recreation is also my problem. Their health and safety from our departure to our return, particularly during training when we will be using live ammunition, rests squarely on my shoulders.

As in all things military, while the responsibility is mine, the details are worked out by my staff. Actually, preparation for the 1953 field training began immediately after we returned from camp in 1952. We submitted a Field Training Report to the Division Commander and in turn received the ratings of all

COLONEL A. D. REUTHERSHAN, NGUS, is Commanding Officer, 71st Infantry Regiment, 42d Infantry Division, New York National Guard.

our units. The latter must be carefully studied. Deficiencies must be corrected; and what was done well must be done even better next year. On rare occasions it means moving officer personnel around to eliminate square pegs in round holes; and where losses and promotions occur, officer replacements must be trained in their new assignments.

We are most fortunate in that our 42d Division staff is highly competent and well trained. As early as January 1953, we received notice of our tentative camp dates and Division G3 began discussions of training problems with my S3. Division continued to issue advance information as fast as it was received and this was relayed to subordinate units.

In the spring, a Commanders Conference is held with the regimental and other divisional unit commanders sitting in with the Division Commander and his staff. After we discuss over-all plans, a continuing series of conferences takes place between the S1, 2, 3 and 4 officers of the regiment and their Division counterparts.

Early in May the Division and regimental commanders and their staffs make an advance trip to Camp Drum. During this three-day visit a thorough reconnaissance is made of barracks, mess halls, bivouac and training areas and range facilities for field firing and tank tests. Commanders check on availability of training aids, access to detraining points, religious, recreational and post exchange facilities and, last but very important, the amount and type of rations.

On our return, laden with billeting charts and a supply of maps, we have practically all the planning information we need. The staff can now fill in the gaps by drafting the necessary orders.

My executive officer and I sit down, review the general plan and then give it to the regimental staff for implementation. Among other details, the staff is instructed to prepare a draft of an Order for Field Training based on the Division's Technical Manual. The S3 is directed to organize committees to write unit training exercises based on Army Field Forces tests. The S1 and S4 are called upon to draw up administrative details in draft, particularly procedures for movement of organic vehicles to camp. The list of deficiencies at previous encampments is re-checked to insure that corrective steps have been taken. Where questions of policy arise, the regimental commander is instructed to confer with the Chief of Staff at Division Headquarters in person.

This, then, is the over-all picture. The responsibilities assigned

S1, S2, S3 and S4 and officers of the special staff are normal for such a movement. But here again the difference between a National Guard regiment in state service and one on extended active duty becomes apparent.

In the case of the National Guard unit, instructions for special training and even routine orders must be carefully prepared. Instead of providing this guidance during a 40- or 50-hour week, preparation must be concentrated in a two hour session, one night a week, as part of the regular armory training program. Adding to the problem is the fact that approximately one third of the men of the regiment will be attending camp for the first time.

The Administrative Order drawn up by S1 and S4 therefore must list in great detail the many minor matters that are automatic in a unit on active duty. These range from daily post calls to passes, from garbage details to guard details, from church services to swimming regulations. They cover the routines of barracks life, how to prepare and use the ration as issued, how many vehicles will be assigned for what purpose, what clothing and other necessary equipment will be taken to camp.

No wonder S3's task of co-ordinating training plans often appears to be a three-ring circus. His work starts immediately after camp and continues through the year. He must confer frequently with the Division G3 and keep all echelons carefully informed concerning changes and new developments.

As often happens in a peacetime regiment, our S2, in addition to his normal intelligence duties, also acts as battalion commander for special troops—Headquarters, Service, Medical, Tank and Heavy Mortar Companies. His hands are full.

In well-trained and smoothly functioning staffs such as exist in most National Guard infantry regiments today, a Standing Operating Procedure outlines most of these details, yet each year new problems arise. When, for example, C and K rations were declared critical items and their use on rail movements by National Guard units was curtailed, substitution of cold sandwiches was recommended. But cold sandwiches never raised any soldier's morale. Following conferences of our S4, our Food Service Officer and local contractors, we were able to provide a full breakfast prior to departure, the meal consisting of fruit juice, scrambled eggs and bacon, rolls and coffee. The noon meal en route was a box lunch containing half of a fried chicken, two buttered rolls, fruit, two cup cakes and a full pint of milk—all within the ration allowance. The result was a considerable

rise in morale. The box lunch feature, incidentally, has been adopted by a number of other units.

During the middle weekend in camp, passes are issued from noon Saturday to Taps on Sunday. Special passes are available for those wishing to visit Canada and summer resorts in the Thousand Islands area. The Activities and Recreation Officer arranges for convoys to take our men to a central point at Alexandria Bay and pick them up on their return from pass. The U.S.O. in Watertown, New York, admittedly one of the best in the country, also assists. The result is high morale. Year after year finds the regiment with no men AWOL on Monday morning after the week-end.

Religious guidance, too, is just as important in a National Guard regiment as in a unit on active duty. Prior to the encampment our three chaplains—Catholic, Protestant and Jewish, all fine field soldiers—arrange a complete program of religious services for all faiths. Each man is encouraged to confer with his chaplain at any time. Perhaps as a result of this policy, whenever the Inspector General holds his periodic "complaint session," few men appear with honest grievances.

Responsibility for the health of our men is emphasized. The order is "If he acts sick, looks sick or is sick get him to the Medics." Does this raise the number of malingerers? Quite the contrary. With this policy in operation last summer we had by far the lowest rate of man days lost by accident or illness among all the regiments of the Division. It is established policy that the regimental surgeon and his staff shall give each case courteous and careful personal consideration. Running sick call simultaneously by battalions at battalion headquarters does away with the long and tiresome wait at the regimental dispensary.

My regiment is blessed with a first-rate Regular Army instructor, assistant instructors and sergeant instructors. Their never-failing advice and assistance is of incalculable value. Always they are made to feel that they are part of the command.

Recruiting, while not a summer camp problem, is nevertheless closely related. If the unit is understrength and short handed, details come around more often. Necessary training is cut down, promotions are curtailed and morale in general is lowered. Officers in the active military service find that replacements come up with the rations. In the National Guard, however, a unit commander first has to become a recruiting officer and go out and get his own men. They do not just walk in—at least not into a combat infantry regiment. Along with

other planning for camp, the regimental commander must constantly urge his unit commanders to maintain recruiting efforts.

Once the men are recruited, the commander is still bedeviled by the problem of assuring attendance at camp. Each year since 1948 we have had the highest attendance, percentage-wise, among the seven New York National Guard infantry regiments at camp. This does not just happen. Two months prior to the encampment a check is made of each man. Where any doubt exists as to his attendance, the company commander investigates, then the battalion commander. If the employer's reluctance to grant leave time is a factor, it receives the personal attention of the regimental commander. In thirty-five years, I have never found an employer who, if approached properly and early enough, could not be sold on his patriotic duty as an American citizen to permit his employees to go to camp. As a result of this system, our regiment's 1952 attendance at Camp Drum was 99.8 percent.

The fifteen-day camp tour is the culmination of the preceding year of armory training. But while all this is going on, there are forty-eight other weekly drills, parades and reviews for which similar plans must be made. A \$3,000,000 state-owned armory must be maintained, as must several million dollars worth of Federal property issued to the regiment. And through it all your National Guardsman is working five days a week, sometimes more, earning his livelihood as a civilian. Comes his summer vacation and he goes to camp. The Monday morning after camp he goes back to work. Truly, the work of the citizen-soldier in the National Guard is a labor of love and patriotism.



If enemy planes should appear over New York, these anti-aircraft men would be the first to go into action.

U. S. Army Photograph

ANTIAIRCRAFT WEAPONS PROTECT INDUSTRY

ESTHER PASTALOVE

THE AVERAGE AMERICAN citizen's first startled glimpse of an Army antiaircraft artillery gun battery, looming up in the familiar precincts of a residential neighborhood, is likely to shock him into momentary speechlessness.

But the primary mission of the battery with its four heavy radar-controlled guns manned by troops in battle dress, is not to jolt him out of his dream of peace on his home ground.

Rather, its mission is to maintain a twenty-four hour, seven day a week, combat readiness for protection against hostile air attacks on vital targets—the vast complex of power plants, utilities, defense industries and similar projects.

This mission is perhaps best described by the symbol of a deadly scorpion, employed by the 69th AAA Gun Battalion at Fort Tilden, New York, with its accompanying motto, "Beware of the Scorpion's Sting." The battalion itself is typical of similar units in critical areas around the country.

Even the battalion's routine activities are charged with vibrant expectancy—a poised alertness and awareness of its grave defense responsibilities. The troops at the 69th are awakened by the blowing of a whistle at 0545. They stand reveille at 0615. Mess is followed by an hour of individual artillery instruction by the gun section leader.

From 0830 to 0930 there is a "must" activity—the daily checking of all equipment assigned to each battery's Motor Section. The Section is charged with the care of all vehicles, such as jeeps, $\frac{3}{4}$ -ton trucks, $2\frac{1}{2}$ -ton trucks, and artillery tractors which serve as prime movers for the gun carriages and ammunition.

During the next hour, a military leadership talk is given by an officer who stresses the part each soldier plays in the actual working of the battery. Every man on duty at the gun site, he emphasizes, must be thoroughly trained not only for his

ESTHER PASTALOVE is a civilian news writer in Information Section, Headquarters, First Army, Governors Island, New York.

own military occupational specialty but in the jobs of all other members of the gun crew as well.

From 1030 to 1120 is given over to instruction in vehicle maintenance. After the noon meal there is additional individual artillery training from 1230 to 1530, followed by artillery drills and tracking missions. The men are trained in removing the big guns from their two-wheel bogies; they emplace them in readiness for firing, strip the weapons and load them with live ammunition. The day ends with physical training, organized exercises and games from 1530 to 1630 hours, after which the men have their supper and remain on call.

The 69th is part of a defense team consisting of the Army Antiaircraft Command, Air Force and civilian Ground Observer Corps. The latter organization mans civilian "spotter" posts set up by various state civil defense commissions along the northeastern border of the United States. Twenty-four hours a day, members of Operation Skywatch scan the sky at low altitudes where the military radar network may be ineffective because of interference from mountains or curvature of the earth. (See "Civilians on the Watch," November 1949 DIGEST.)

Operations are typical of those taking place across the country. When a ground observer sights an unidentified plane within the New York metropolitan area, he immediately telephones the information to his regional filter center which plots all reports on a chart and thus tracks the plane's flight.

Instantly the filter center reports to the Ground Control Intercept (GCI) of the Air Force Eastern Air Defense Force, with headquarters at Stewart Air Force Base, Newburgh, New York. Within minutes, fighter planes rise to meet the attacker.

The alert is transmitted at once to the Eastern Army Antiaircraft Command at Middletown, New York, as well as to the 52d Antiaircraft Artillery Brigade at Fort Wadsworth, by the Ground Control Intercept at the same time that it alerts Air Force elements.

Eastern Army Antiaircraft Command operates under the over-all jurisdiction of Army Antiaircraft Artillery Command at Ent Air Force Base, Colorado Springs, Colorado, which is also headquarters of the Air Force's Air Defense Command. (See "The Army's Role in Air Defense," April 1952 DIGEST.)

Under Eastern Army Antiaircraft Command, the 52d Antiaircraft Artillery Brigade is responsible for the activities of all antiaircraft artillery groups, battalions and batteries situated in the New York metropolitan area.

Rem
this
is ac
sigh

*Reminiscent of Korea,
this antiaircraft battery
is actually located within
sight of New York City.*

U. S. Army Photograph



Within a period of three minutes of the initial alert, all on-site antiaircraft batteries are notified. Sensitive radar sets at the gun batteries go into action. Once the target is picked up, they switch to automatic controls, tracking the plane without the operator's aid. The radar transmits data to electronic computers which direct the heavy guns on target.

Day and night, during fair weather or foul, an alert finds everything in readiness. Gun crews and officers take their positions. The ammunition is loaded from the ready pile of projectiles stacked near the guns. Reserve supplies are stored in protected "ammo" bunkers nearby. Within minutes of the first warning, the Army's antiaircraft artillery guns are ready to fire against an invading aircraft.

Besides its four 90-mm. or 120-mm. weapons, each gun battery is equipped with multiple .50 caliber machine guns. Some batteries have 40-mm. guns together with quad .50's. A new weapon now entering the antiaircraft defense picture is the Skysweeper, an automatic radar-controlled 75-mm. gun which engages aircraft flying at supersonic speeds.

Troops assigned to batteries in the First Army Area live in tents under field conditions at sites near major industrial and Air Force centers. Handpicked for their technical civilian skills as well as for their "jack of all trades" abilities, most of them have received intensive training at Fort Bliss, Texas, Camp Stewart, Georgia, or at White Sands Proving Ground, New Mexico. Although they may bivouac in sight of Gotham's spires, they can take their place alongside our finest combat units, always "on the ready" for front-line action whenever the warning alert sounds.

Their mission is one that vitally concerns all Americans. They are protection against destruction from the skies.



Light in weight and rapidly constructed, the floating footbridge facilitates stream crossings by infantrymen.

U. S. Army Photograph

DEVELOPMENTS IN MILITARY BRIDGES

COLONEL DAVID G. HAMMOND

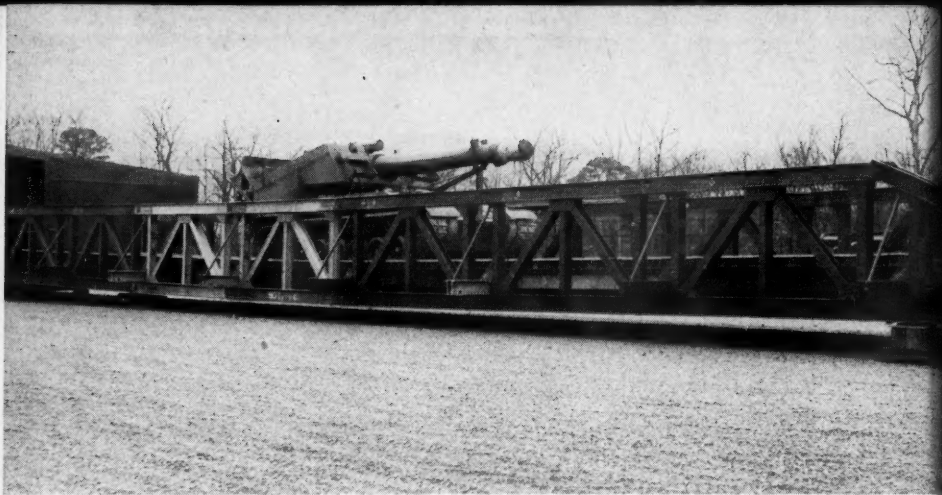
EVER SINCE armed men marched forth for conquest, military history is full of the role that rivers have played as invaders sought to cross them or as heroic defenders used them for lines of resistance. Methods of crossing water barriers have always been of prime importance to an army on the move. Similarly the defense of fords or bridges has been of pivotal concern to commanders in static defense positions.

Three thousand years ago Sun Tzu in China discussed the tactical importance of river crossings. History records that Xerxes built a "bridge of ships" across the Hellespont to attack the Greeks; Caesar built a wooden bridge to cross the Rhine; Horatius defended the bridge over the Tiber and later American Minutemen waged their historic fight "By the rude bridge that arched the flood" at Concord. Napoleon's engineers developed Austrian ponton bridges to a high degree. The American crossing of the Ludendorff bridge at Remagen has a firm place in World War II annals. More recently, the drop of a bridge by air to an embattled Marine Corps unit in Korea made news.

No great advance in the art of military bridge building was evident from Napoleon's time up to the era of World War I. Ponton bridges and wooden structures sufficed to carry the comparatively light loads of horse-drawn equipment which generally ranged up to five tons. As late as 1940 an Army policy statement specified that the division load limit was ten tons and that equipment organic to the division would not exceed such weight. But with the increase in size of armor and other vehicles, weights and dimensions of equipment increased rapidly.

In the period between World Wars I and II, the significant increase in bridging requirements resulted in concentrated research activity by Army Engineers. At first, bridges of 7½- and 15-ton capacity were developed but these were procured only in

COLONEL DAVID G. HAMMOND, Corps of Engineers, is Chief, Research and Development Division, Office of the Chief of Engineers, Department of the Army.



The aluminum fixed bridge weighs half as much as the Bailey bridge of World War II.
U. S. Army Photograph

limited quantities. The model 1925 "heavy" bridge of about 23 tons capacity never reached quantity procurement. By 1937, development focussed on 10-ton "light" and 25-ton "heavy" ponton bridges, both of which were standard at the beginning of World War II. These were procured in quantity and used throughout the war; however the 10-ton bridge soon proved too light for other than very limited usage.

Perhaps the best known and most widely used tactical division bridges used during World War II were the British-designed Bailey Fixed Bridge and the American steel treadway floating bridge. Both had a 50-ton capacity (depending on span or stream velocity). But in the last few months of the war, development of heavier and wider tanks such as the M-26 ticketed even these for obsolescence. Both bridges were later modified to accommodate larger loads and have since been used effectively in Korea.

Contrasted with the 10-ton pre-World War II standard, a field army today has need for bridges of up to a hundred tons capacity. Anticipating such demands, the Corps of Engineers has been working on the development of a complete and integrated system of military bridges designed to meet the planned requirements of the Army, particularly those imposed by Armor. Thus as the heavy fire power of the Army grows, the transportation and logistic requirements will be keeping pace.

The Corps of Engineers is co-operating not only in meeting the Army's needs for transporting continually larger and heavier equipment, but in meeting the interrelated tactical requirements of mobile warfare. The usual methods of stream crossing, for instance, call for reconnaissance followed by advance crossings by assault teams, widening of the bridgehead and finally swift passage of the main body of troops. In order



The floating steel bridge, of simplified design, can carry the heavy traffic of infantry and armored divisions.

U. S. Army Photograph

to provide for all of these phases, the Engineer Research and Development Laboratories at Fort Belvoir, Virginia, are working on improved reconnaissance and assault craft, a better light tactical bridge, heavier bridges and rafts for division use and more permanent Line of Communication crossing methods.

The two principal items of equipment—already tested and put into production—are the closely related and widely used fixed and floating bridges required to facilitate rapid movement of division-size elements, both infantry and armored. The floating bridge, known as T5, is of steel while the fixed bridge, designated as T6, is aluminum. Designs also have been prepared for a steel fixed bridge and an aluminum floating bridge but no procurement has as yet begun.

The new aluminum fixed bridge has great advantages in lightness and ease of construction. The new steel fixed bridge weighs only three-fourths as much as the World War II Bailey bridge of comparable capacity while the new aluminum type weighs only half as much as its older counterpart. Both require only 18 panels as compared to 168 for the Bailey. Thirteen 5-ton trucks will haul them instead of the forty-four 2½-ton trucks previously required. Each can be erected in about one-third the time, and with fewer men, than the old model.

However both these bridges are designed for construction with the aid of cranes, while the Bailey bridge is assembled entirely by hand. The aluminum fixed bridge has been assembled without a crane at test sites, but since each panel weighs 1650 pounds, this method is considered only an emergency capability under combat conditions.

Once assembled, the new bridges can support about 50 percent greater loads than the comparable earlier bridges. With some

minor changes the T6 can be used not only by a division but by an entire army with its heavier equipment.

The fixed type bridge is useful for spanning deep ravines as well as water barriers. At ordinary division load capacity, the T6 can be stretched to span approximately 180 feet. The bridge is put together in sections with a "launching nose" bolted on the fore-part. The framework rests on "rocking rollers" and when enough sections have been fastened together to span the river or gully, the bridge is pushed forward—preferably by truck or bulldozer. It comes to rest with the launching nose on the opposite shore where it is fastened quickly into position. The launching nose is then removed, ramps attached at both ends and the bridge is ready for heavy traffic. All this can be done in about two hours.

Whether the bridge is of the floating or fixed type, it is obviously still necessary to have control of the far shore in order to build the structure. The first crossing of a stream—except possibly for reconnaissance—will normally be made in assault boats. These have been developed to carry an infantry squad fully equipped, plus an engineer crew. They may be paddled or propelled by outboard motors.

Originally the assault boats were intended to serve also as floats for an infantry support bridge. However to meet this requirement they had to be made too big and too heavy to serve satisfactorily as assault boats. Present development plans call for a light assault boat of either plastic or aluminum that can be carried down a narrow trail by six men and rapidly launched by troops in full field gear. These boats nest for transportation in conventional light trucks or pole-type trailers. Separate larger boats or other floats are required for the light tactical bridge which will follow.

Hand in hand with the new bridges, a new family of boats also has been developed for heavier engineer work. These are aluminum, 19 and 27 feet long, powered by 93- and 186-horsepower engines. They replace older plywood boats of approximately the same size which were powered by smaller engines. The 27-foot boat is in two sections for ease of transportation.

Further development in the boat field will concentrate on designs in alternate materials such as plastic and steel. Work is also being done on outboard propulsion units suitable for military operations, to range from 10- to 75-horsepower. They are to be more rugged, more reliable and should have longer life than existing models.

Pneumatic reconnaissance boats in three- and six-man sizes are also under development. They can be paddled where silence is required, or powered by outboard units where speed is more important. Investigation also is being made in the field of silent propulsion units—closed-cycle steam engines that are expected to be better than the battery-operated electric units employed on a limited scale in the past.

A greatly improved floating footbridge has undergone service tests in Korea, where it was found to be far superior to the 1938 model. The new footbridge consists of a single lane of aluminum walkways supported at 11-foot intervals by aluminum pontoons. A rope handrail supported by aluminum posts extends along both sides. The bridge will support men with full field equipment when double timing at five-foot intervals in currents up to eleven feet per second. A set consisting of 472 feet of bridge can be carried in two 2½-ton trucks and two 2½-ton pole-type trailers. By the use of quick connecting couplings, some 250 feet of bridging can be built in about fifteen minutes under favorable conditions.

Improvements in light tactical bridging designed to carry combat transport of the infantry division (except armor and heavy weapons) has lagged somewhat behind the other phases of the program. However, engineering models and components have been tested and plans are being made for such bridging. Present indications are that this type will consist of either double treadway or full-width aluminum superstructure which will be supported on plastic or aluminum half-pontoons somewhat larger than the present assault boats. The bridge will probably have a deck about nine feet in clear width; it will be hand erected and should be easily transported on standard 2½-ton trucks. The largest component, the half float, would weigh 470 pounds.

In normal tactical operations, construction of the division bridge will usually follow the initial assault crossings and the restricted crossings on the light tactical bridge. It is expected that the heavier division bridge may often have to be assembled under direct fire where cranes and heavy construction equipment cannot operate. Intensive development effort is now being devoted to devising improved methods and auxiliary equipment to permit the erection of the T5 floating bridge and rafts assembled from its components with a minimum of men and without cranes at the river bank. Built at the earliest possible moment, it will serve to get across a large number of heavy vehicles to build up the bridgehead.

As the campaign unfolds, the division bridge may be replaced by a heavier and more permanent type Army bridge which can carry virtually any load and withstand the continuous traffic requirements of several divisions. In most situations the division bridge will be replaced by a Line of Communication bridge, either of standard design or fabricated from such steel or timber members as may be found in the theater of operations. Designs are now being prepared which will allow such bridges to be built speedily by engineer troops who may not have much training or time for preparing specific designs themselves.

Line of Communication railway bridges also are being designed to permit laying of railway track over spans up to one hundred and fifty feet. These would be constructed either from standard sets or from locally available materials.

In addition, developments are well along on special types of bridges which can be employed under fire and which will enable armored or infantry units to cross ravines and gullies quickly. These are being designed to carry heavy tanks over spans up to forty to sixty feet. The new aluminum bridge could of course traverse such obstacles but the new, lighter emergency type bridging would cut the construction time considerably.

Currently only the T5 and T6 members of the new bridging family and the improved floating footbridge have been placed under procurement. But much of the other equipment will soon be in the hands of troops for user tests. Only thus can deficiencies be detected and improvements incorporated in the final design.

Although the Engineers' task continues to grow in magnitude and difficulty as weights and sizes of vehicles increase, it can be expected that progress in bridging and stream-crossing equipment will continue to keep pace with the ever accelerating mobility of our Army in the field.

FROM CLUBS AND SPEARS TO AUTOMATIC WEAPONS

LIEUTENANT COLONEL GEORGE M. CHINN

II—The Flintlock and Metallic Cartridge Eras

DURING the seventeenth century there was little or no actual development in volley-fire weapons, other than a few isolated cases, such as the 1626 patent granted in Scotland to William Drummond by Charles I. The weapon is described by the inventor as "being a machine in which a number of musket barrels are fastened together in such a manner as to allow one man to take the place of a hundred musketeers in battle."

The arrangement consisted of fifty barrels put together organ-gun fashion for the purpose of sustained fire. The method of firing volley after volley from the same muzzle-loading barrel was novel but by no means practical. Each barrel was loaded with one charge upon the other, the powder of each charge being aligned with a touch hole all the way up the barrel. Drummond's idea was to discharge each barrel by moving adjustable fuse holding devices until they lined up with the touch holes. This was supposed to fire each charge alternately somewhat on the order of the Roman candle.

Increased fire power was the paramount theme in each and every weapon offered for governmental consideration. The ruling heads also thought in this fashion and encouraged the design and construction of practically anything that might produce the desired results.

Theories for such instruments of war were devised by men of letters as far back as 1663. *Transactions of the Royal Society*, 1663-64 contained a paper by a man named Palmer in which he explored the possibilities not only of using the forces of recoil, but also of trapping the gases along the barrel and

LIEUTENANT COLONEL GEORGE M. CHINN, USMC, Navy Bureau of Ordnance, is the author of "The Machine Gun." This is the second in a series of three articles extracted from that publication. The opinions expressed are those of the author and do not necessarily represent official views of the Department of Defense or any of its agencies.

using this heretofore wasted energy to load, discharge and reload the weapon. But there is no record of Palmer making any attempt to produce a working model.

In London on 15 May 1718, there was issued to James Puckle a patent on a revolver type of firearm that has proved one of the most controversial in all weapon history. This odd-looking weapon, which according to the inventor was "a portable gun or machine that discharges so often and so many bullets, and be so quickly loaded as renders it next to impossible to carry any ship by boarding," has perhaps caused more discussion than any other weapon of its kind. The drawings are unusually clear, considering the time; and many new and clever features are shown, especially in mounting. However, Puckle's specification that round bullets be used on Christians and square ones on Turks makes one wonder if it were really a serious attempt to produce a repeating weapon. Puckle seems to have been more interested in using the King's patent office as an expedient to advertise his patriotism and church affiliations.

Puckle's patent certainly represents the most refined design to be found in the whole slow-match era. It also shows that the mechanisms involved in getting a weapon to fire repeatedly had far outstripped the method of igniting successively the charges as they came into alignment.

The revolver flintlock gun was made in various designs, both in England and France. The French went so far as to build a similar weapon that employed eight barrels revolving around a common axis. Each barrel was fired as it revolved into alignment with a fixed flintlock firing system.

A Bostonian named Elisha H. Collier, after first trying to interest various people in this country in his revolving flintlock firing system, went to England with the design. His gun, considered the finest weapon of its kind, proved very popular and was used by the English in India.

After his success in England and France, Collier set up a similar gun business in Boston for the purpose of making his revolving flintlock guns. These had such improved features as a self-priming pan and gas-tight joints between cylinder and barrel. A novel way of rotating the cylinder was used; upon releasing the trigger after firing, it was indexed by tension of a spring that had previously been hand wound.

During the flintlock period of ignition there was little or no actual development other than refinement of existing weapons and the substitution of the flint and steel spark-throwing

arrangements in lieu of the slow match. For at least a hundred years, every military power used the flintlock system—a factor which did more to standardize weapons than any other thing. Although the reliable flintlock system had long outlived its usefulness and had become a definite bottleneck to future progress in gun design, only a few people realized this. Opinion at the time was agreed that no improvement was needed.

When Berthollet discovered in 1786 that chlorate could be exploded by a sudden blow with a metallic hammer, the public was not even mildly interested. Likewise when Howard in 1799 found that mercury fulminate could be rolled into pellets and ignited by percussion, the event was barely recorded for posterity. Yet the latter discovery was the greatest single achievement in the history of firearms development. The discovery of detonating power introduced the percussion system of ignition which is still with us today.

An enterprising Scottish minister of Presbyterian faith, the Reverend John Alexander Forsyth (1768-1843), immediately recognized the great advance made in this field. On 11 April 1807 he patented the "application of the detonating principle to exploding gunpowder firearms."

In both France and Germany the idea of substituting a detonating mixture in place of flint and steel was being worked out simultaneously and independently. Pauly, the famous Parisian gunsmith, was making paper percussion caps as early as 1812. These were made by sealing a small portion of mercury fulminate between two thin layers of paper, producing a cap.

Inventor Forsyth designed and built several guns employing what he called "pill locks." He placed on the side of the barrel a nipple that led to the powder charge. The upper end of the nipple had a slightly enlarged opening in which was placed a small pellet, or "pill," of the fulminate of mercury mixture. He later improved on this by making a mechanical device to place the pill on the nipple by actuating the hammer.

Napoleon was the first to become interested in this departure from the time-honored flintlock system, and offered Forsyth twenty thousand pounds for his invention. Forsyth patriotically refused the offer and gave the rights to his government. To the memory of this Aberdeenshire minister, a plaque has been erected in the Tower of London.

An improvement in Forsyth's invention followed immediately. An American sea captain, Joshua E. Shaw, of Philadelphia, had been brought into contact with the fulminate of mercury igni-

tion system. He immediately set about to correct the poorer features of the loose pill placed on the nipple of the gun and conceived the idea of housing the mixture in a pewter cap that could be placed over the nipple. This not only protected the primer from weather conditions, but also rendered it practically impossible to lose, as the cap was designed to grip firmly. When his patent was finally approved in 1816, Shaw had changed the material from pewter, which crushed too easily, to copper. In 1817 the United States Government had one hundred Hall rifles modified to take the percussion cap. Later Congress granted Shaw a \$20,000 bonus for his invention.

The Hall rifle was the first breech-loading arm used by American military forces. Its inventor, Captain John H. Hall, United States Army, also originated gage application to dimension with tolerances that resulted in our modern conception of interchangeability.

Eli Whitney, inventor of the cotton gin, had already given the armed services a very simple lesson in mass production. He delivered to the Army many kegs full of triggers, hammers, barrels, ramrods, stocks and other parts. Before a group of astonished officials, he used a dozen common mechanics to assemble the component parts. Then he took the finished pieces to the range and personally proofed each weapon. He showed that if each part was made to specification, assembly could be done with mediocre skill, thereby doing away with the old theory that a gunsmith had to produce a complete weapon.

By making each component fit a master template, every part was capable of being interchanged with a similar piece. This principle was instantly added to the many other mechanical tricks in the art of gunsmithing, of which the New England states were beginning to be the center.

A restless civilian population was creating a demand for weapons far greater than any war had ever done. The pioneer settler demanded and would pay for in cash, to his last cent, the best that could be created in weapons. His specifications were simple: the arm must be reliable, accurate, rugged, simple in design, as light as practical, and with all the fire power the inventor could build into it. The three-quarters of a century following the percussion cap patent saw more accomplished in development, design and performance of weapons than in all previous history.

True, repeating cannon had been used to good effect by our Navy in the War of 1812. A few of these weapons are now

to be found in various museums. Their ignition was of the fire-to-primer type, but they used the revolving chamber system in reverse. The axis of the cylinder was horizontal to the gun, and perpendicular to the center line of the bore. This allowed the cannoneers to load the rear of the cylinder while the forward side was in position for firing. But it was not until 1829 that such a weapon was patented. To Samuel L. Farries of Middletown, Ohio, goes the honor of receiving the first "machine gun" patent issued by the United States Patent Office.

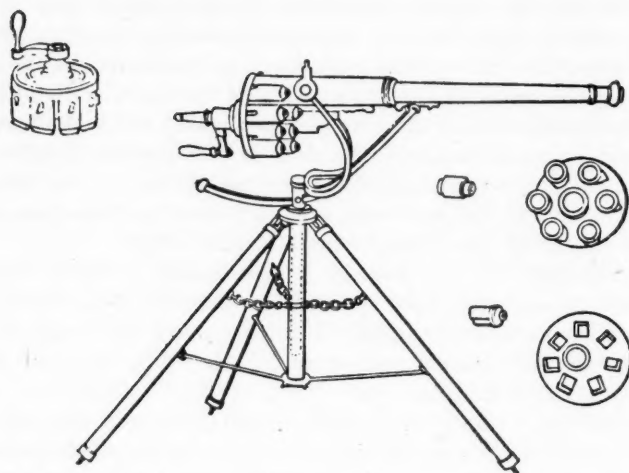
Because of the slowness of muzzle loading, there was no incentive to use improved methods of ignition. Even up to the Civil War, it was standard practice to set off artillery by flaming brand, linstock, slow match, red hot iron or other fire-to-powder methods.

The military class, as a whole, both here and abroad, was slow to accept the percussion system, even in small arms. It remained for a civilian, Samuel Colt, to give the multifiring idea the impetus needed to start an unparalleled wave of gun design and development in the United States. In 1830, at the age of sixteen, on the brig *Corlo* bound for India, Colt conceived an idea for a revolving type of firearm. In watching the steering wheel of the ship, he noted that no matter which way the wheel was turned, each spoke passed directly in line with a fixed clutch and could be held fast at any chosen spoke, if desired. From this he visualized his future revolver.

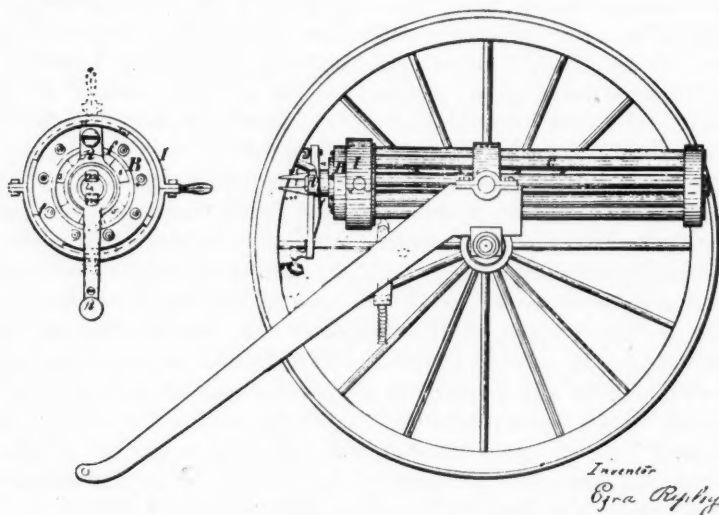
Although the idea of a revolving firearm had been attempted centuries before, the importance of Colt's invention is that it was the first practical revolving weapon employing the percussion cap in conjunction with the automatic revolution and locking of the cylinder by the act of cocking the hammer.

On 5 March 1836, Colt established his first factory in an abandoned silk mill in Paterson, New Jersey. After producing several models, the venture at Paterson came to an end. Colt, seeking better manufacturing facilities, contracted with Eli Whitney (son of the cotton gin inventor), who was one of the largest producers of firearms in the United States, to manufacture some revolvers of improved design.

As a result of this brief association, mass production combined with the assembly line was introduced into American weapon manufacture. Whitney, Sr., had contributed the first; and Colt, the latter. The innovations in production methods were copied by other gun producers throughout New England. This gave to a limited eastern seaboard area a manufacturing



James Puckle's 1718 patent featured a modern type tripod mount and accessories for firing square bullets at infidels.



The Ripley machine gun, patented in 1861, had a revolving cylinder breech block which brought cartridges into alignment with a series of fixed barrels. One shot, or a whole volley, was obtained by a quick turn of the handle.

supremacy in firearms production that was unchallenged by the rest of the world for more than a century. Though the business association of Colt and Whitney was of short duration, the idea of manufacturing interchangeable parts and of combining the components by the assembly line method has remained the principal cornerstone of American manufacturing supremacy.

Colt, in 1848, established his own plant at Hartford, Connecticut. Some of the finest rapid-firing weapons known from that day to this were produced in this factory. The popularity of Colt's early multifiring revolvers assured recognition of the application of the percussion cap to other kinds of weapons for military use.

The first serious effort abroad to adapt percussion ignition to a multifiring weapon of war was carried out by a former officer of the Belgian Army. In 1857 he completed a model composed of fifty barrels of rifle caliber, assembled parallel to each other in a prismic group which had the appearance and weight of a cannon. Records show this unusual weapon's rate of fire to have been a hundred shots a minute; its range, two thousand meters (one and one-quarter miles), was unusually long for that period.

At the same time, Sir James S. Lillie attempted to build a similar weapon in London combining the revolving chamber with the multibarrel system. Twelve barrels were arranged in two rows, fastened several inches apart. To the rear of the breech end was a revolving cylinder, chambered for twenty charges. Each chamber was fitted with a nipple and percussion cap which could be exploded when a charge was manually aligned with a barrel. The firing was carried out by turning a crank that manipulated a series of rods, serving as hammers, striking the percussion caps in turn. The problem of servicing and loading must have been appalling. It is understandable why this weapon was termed a freak even at a time when radical design was usually heralded as an improvement.

In 1845 Sir Henry Bessemer patented in England a self-acting breech-loading gun that used steam to perform the functions of feeding, locking and firing of the piece. The weapon's recoil opened the valve after the projectile had safely cleared the bore. This is the first time any outside agent other than manual operation was employed in an attempt to produce sustained fire. No record of a working model of this unusual weapon exists. Bessemer also patented what is known as the Bessemer process for making steel—a development so successful

and so revolutionary to the steel business that he lost all interest in his earlier patents.

An earlier British steam gun, however, had been witnessed by the Duke of Wellington. When asked by the proud inventor, a Mr. Perkins, what he thought of the idea of steam propulsion of missiles, the Iron Duke replied, "It would be a very good thing if gunpowder had not been invented."

Thomas E. Linden, also of London, filed a specification in May 1856 for a gas-operated piston beneath the barrel of a weapon. This piston actuated a device that was used to fire and raise a hinged chamber to receive a paper cartridge. The weapon, however, had to be cocked manually and a percussion cap placed on the nipple after each shot. The principle, nevertheless, was a clear application of a mechanical breech opening.

On 8 July 1856 the United States Patent Office issued a patent number 15,315 to C. E. Barnes of Lowell, Massachusetts, for a crank-operated machine cannon. This weapon had many original improvements, including a novel employment of gas pressure from the chamber for the purpose of cocking the piece. The rate of fire depended solely upon the speed with which the crank could be turned. This weapon was far ahead of its time, and its development would have produced a reliable machine gun several years prior to the Civil War.

As mechanical improvements continued, the idea of incorporating the detonating cap as an integral part of the fixed charge was inevitable. The period 1856 to 1876 saw more varied and distinct types of breech-loading arms developed than any other equal period in the history of arms. Many of these required their own peculiar type of cartridge.

Christian Sharps' self-consuming cartridge made of linen was introduced in 1852. The cartridge made at his Fairmount, Pennsylvania, gun factory was a definite improvement over the fragile paper-filled envelopes previously used. The linen could be held in shape and would stand more abuse than the paper cartridge. That cartridges, in one form or another, were beginning to be used throughout the service is verified by a record showing the purchase of 393,304 paper cartridges by the United States Army in 1851.

Colonel Samuel Colt collaborated with the Ely brothers of England in making further improvements on his patented self-consuming cartridge. Made of a stiffer and more durable paper, it could be held to close manufacturing tolerances. The paper cartridge case was impregnated with a mixture of potassium

nitrate. The explosion of the powder charge completely consumed the cartridge case. The percussion cap had sufficient force to rupture the paper and drive fire through to the powder charge.

Smith and Wesson of Springfield, Massachusetts, in 1857 manufactured the first really successful rim-fire version of a metallic cartridge, self-contained and reasonably waterproof. This ammunition, with added improvements, is still produced by various American companies.

On 22 January 1856, the unusual method of housing both detonator and propelling charge in the base of the bullet was introduced and patented. The Winchester Arms Company made a repeating weapon called the "Volcanic" using this odd principle. As the propelling ingredients were all contained in the bullet itself, there was naturally no problem of case ejection. This radical design was to compete with the impregnated self-consuming paper cartridge cases.

The Volcanic bullet had a small charge of finely granulated powder and a large portion of fulminate of mercury mixture housed in a thin metal cup, all of which was protected from the elements by a thin cork insert. A smart blow from the hammer ignited the detonating mixture, forcing the flame through the openings provided, and exploded the powder in the upper conical cavity of the bullet.

During the middle of the nineteenth century, the introduction of various methods of producing cartridge cases, the development of the conical bullet, and the idea of integrating the detonating cap in the cartridge were undoubtedly responsible for the rapid and radical designs of the innumerable weapons constructed to fire them. Multifiring weapon development went hand in hand with cartridge design. As each different type of cartridge was introduced, inventors followed closely with a mechanical firing system, designed to use the new idea.

The greatest problem in ammunition development was finally solved by George W. Morse's invention in 1858—the first true attempt at a metallic cartridge with a center fire primer and an inside anvil. It marked the most important step in the whole history of cartridge design. All other methods, experiments and alleged improvements were but attempts to do what Morse successfully accomplished.

Ezra Ripley of Troy, New York, took advantage of the paper cartridge to patent a machine gun. Sustained volley fire was obtained by a compact firing assembly that allowed the gunner

to fire one shot, or the whole volley, by a quick turn of the handle. The weapon consisted of a series of barrels, grouped around a common axis, that were open at both ends for breech loading. The barrels remained stationary during firing. The breechlock, made in the shape of a revolving cylinder, was loaded with the conventional paper cartridge from the forward end of the chamber.

The weapon could be prepared for firing by releasing a spring-loaded catch that locked the handle in place. The gunner then pulled the firing assembly rearward and removed the empty chambered cylinder for inserting the paper cartridges. By reversing the procedure, the gun was readied for action. The firing arrangement gave the operator a choice of firing rates, from a single shot to slow or rapid fire.

As a number of preloaded cylinders were made available, the individual soldier was able to produce more sustained fire than could a company of men using the standard muzzle loading musket. The Ripley weapon also showed for the first time a consideration for weight saving in field pieces—a factor that had been previously ignored. The weapon showed many basic features that greatly influenced machine gun design for years to come. Yet Ripley presumably let the matter drop after his idea was greeted with skepticism and objections to everything from overheating of barrels to problems of ammunition supply.

The Colt revolver and similar weapons enjoyed the confidence of the public as settlers began to push westward. New England gunmakers were operating at peak capacity. The war with Mexico had come to a conclusion, Texas was being settled, and gold had been discovered at Sutter's Mill. Colt's name was a household byword, but fine weapons were also being produced by many others. Among them were the Wesson brothers, Oliver Winchester, Eliphalet Remington, Henry Derringer, James Cooper, Edmund Savage and Christian Sharps. Their factories began to attract the finest mechanical skill. They invited competition, feeling it presented a means of showing their ability, and prided themselves on being able to present a mechanical solution to any firearms problem brought to their attention. The industry was built on strict competition to meet public demand. There was practically no encouragement from the government by military orders for improved weapons.

After thirty-six years of civilian use had proved the reliability of the percussion cap, the Army finally gave up the time-honored flintlock. But many predicted that even this modern step was

too extreme and the Army would rue the day it had discarded the flintlock. General Winfield Scott is credited with outfitting a regiment of his own with flintlocks, after the adoption of the percussion system was approved over his strenuous objection.

There were many experiments, conducted by individuals, that resulted in reliable repeating shoulder weapons. The most successful variation was that of combining a shoulder stock with the cumbersome revolver. Thus six shots could be fired with great rapidity and with remarkable accuracy. To increase the range, the revolvers were made with abnormally long barrels and deeper recessed chambers. The increased powder charge caused the large caliber bullet to jump the lands and resulted in an unstable trajectory and damage to the rifling of the barrel. To overcome this, the Colt Company resorted to "progressive" rifling, whereby the lands and grooves gained in twist as they progressed through the barrel.

This system of rifling became quite popular—especially with large bore weapons designed for high velocities. Progressive rifling, with lands and grooves machined to a parabolic curve, was the only way to overcome the error of having a soft lead bullet propelled by an abnormally large powder charge. The experiments, if of no other value, proved the need for a metal jacket bullet, as the various methods of rifling used were but an expensive mechanical attempt to obtain results that could be gotten with a properly balanced metal-covered projectile.

American dominance in the field of manufacturing "know how" came largely from the honest effort of gun producers just before the Civil War to compete with each other in providing the world's finest weapons. As early as 1851, a Vermont firm showed at a London fair guns with interchangeable components manufactured by mass production methods. The British government was so impressed that it ordered the making of twenty thousand Enfield rifles by this method in American factories. Three years later Great Britain ordered from the same company one hundred and fifty-seven gun milling machines; the first automatic tools to be used in Europe. Among them was the eccentric lathe invented by Thomas Blanchard of the Springfield Armory. This device allowed wooden gun stocks to be machine carved with great rapidity in lieu of the laborious hand method formerly employed. The machine turned out irregular, eccentric forms, from patterns, with automatic speed and precision; it has undergone practically no change in design since it was invented. Like innumerable other weapon-inspired tools, it

contributed not only to American domination of the armament business but also helped to reshape the entire structure of the manufacturing world.

The early civilian method of fastening a shoulder stock on heavy barrel revolvers and making a serviceable repeating shoulder arm led the Colt Company to apply the same idea to a full fledged rifle. Consequently the 1855 model revolving rifle was produced. It became the first repeating rifle adopted by the armed services of the United States. This caliber .58 weapon had a full-length rifle barrel. The cylinder was long enough to hold the large powder charge and conical bullet. The Colt method of ramming the charge in the cylinder by a hinged lever was employed.

But the weapon failed to work properly under field conditions. As the soldier loaded the cylinder, he frequently placed too much pressure on the loading lever. This force would rupture the paper cartridge where it bottomed at the aft end of the cylinder, causing loose powder to spill and lodge in the recesses. Sometimes loose powder from a faulty cap or gas leak would cause other chambers to be ignited. When this happened, the soldier using the piece lost his hand or the portion of his arm that happened to be in front of the exploding cylinder. These accidents became so common that some company commanders protected their men by having the soldiers load just one of the chambers. By thus converting to a single shot weapon, they eliminated the hazard of blowing up the piece.

Finally a board of officers met. After hearing all the evidence, they ordered that the Colt's use be discontinued and the pieces sold for whatever price could be obtained. The highest bid was forty-two cents a rifle.

The effect of this episode on the trend toward repeating action guns was almost fatal, so far as our military forces were concerned. For, after the discreditable showing of the revolving rifle, no officer cared to stake his career on any such contrivance, especially since the Colt revolver, which the weapon so closely copied, had been such a huge success.

ARMY INFORMATION DIGEST, an official Department of the Army publication, is published monthly under the supervision of the Commandant, Armed Forces Information School, Fort Slocum, New York, on behalf of the Chief of Information, Department of the Army. The DIGEST provides timely and authoritative information on the policies, plans and operations, including technical developments, of the Department of Defense, the Department of the Army, the other services and the reserve components. Unless otherwise indicated, material in the DIGEST may be reprinted provided credit is given to ARMY INFORMATION DIGEST and to the author. Back issues, as available, may be obtained upon request to the Editor.

Subscriptions (\$1.75 per year to domestic or APO addressees; \$2.25 to other addresses) may be forwarded to Book Department, Armed Forces Information School, Fort Slocum, New York, or Superintendent of Documents, Government Printing Office, Washington 25, D. C.; single copies (price 15 cents) may be purchased through Superintendent of Documents only.

The printing of this publication has been approved by the Director of the Bureau of the Budget, 21 May 1951.

DISTRIBUTION:

ACTIVE ARMY

Admin & Tech Svc Bd (1); AFF (75); AA Comd (5); MDW (29); A (26); CHQ (12); Div (16); Brig (3); Regt (4); Bn (2); Co. (1); FT (4); Sch (25) except USMA, CGSC, AWC, AFIS; PMS&T (2); Dep (2); Hosp (15) except Gen Hosp (80); Pers Cen (3); POE (4); Ars (2); Engr Dist (1); Proc Dist (1); Mil Dist (2); Ret Dist (4); Ret Sta (1); Ret Sub Sta (1); Dspln Bks (5); Div Engr (1).

NG & ARMY RESERVE

Same as Active Army except one (1) to each unit.

(For explanation of distribution formula see SR310-90-1.)



A
I
D